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BOMBAY BRANCH
OF THE
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Engraved by J. Brown.

SIR JOSEPH BANKS.

London. Henry Colburn. 1846.

LIVES

OF

MEN OF LETTERS AND SCIENCE,

WHO FLOURISHED IN

THE TIME OF GEORGE III.

BY

HENRY, LORD BROUGHAM, F.R.S.,

MEMBER OF THE NATIONAL INSTITUTE OF FRANCE, AND OF THE ROYAL ACADEMY OF NAPLES.

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WITH PORTRAITS, ENGRAVED ON STEEL.

VOL. II.

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TO

HIS ROYAL HIGHNESS

THE PRINCE ALBERT, K.G.,

&c. &c. &c.

THIS VOLUME IS INSCRIBED,

AS A SMALL TOKEN OF RESPECT FOR THE INTEREST WHICH

HIS ROYAL HIGHNESS

TAKES IN LETTERS AND THE ARTS.

PREFACE.

In delivering to the world a Second Volume of the 'Lives of Philosophers,' I am bound to acknowledge, with much thankfulness, the favour with which the former was received; but I must, at the same time, take leave to state, that the French critics especially appear to have greatly misapprehended the object of my labours. Some of them have asked what occasion there was to write lives of Voltaire and Rousseau, when there was no new information conveyed respecting those celebrated persons, and no new judgment pronounced upon their works. They seem to have been misled by the accidental circumstance of the French publication only containing these two pieces, which, however, formed part of a series comprehending all the men of science and letters who flourished in the time of George III. Surely, my French friends and neighbours would have been the first to complain had Voltaire and Rousseau been left out of the list. In the most severe of the criticisms which have appeared of these two Lives, I have to acknowledge the very courteous and even friendly style of the learned and ingenious author,

M. Berville; but he will permit me to express no small satisfaction at finding that, after all, he confirms almost every opinion which I had ventured to pronounce upon Voltaire, the subject to which his remarks are almost exclusively confined. As for the want of novelty, nothing can be more perilous than running after discoveries on the merits of works that have been before the world for almost a century, and on which the most unlimited discussion has taken place. It may, however, perhaps be thought that, in one respect, the Life of Voltaire differs from its predecessors. There is certainly no bias either of nation, or of party, or of sect shewn in the opinions given whether of the personal merits or the works of that great man. On one subject M. Berville evidently has entirely misapprehended me, when he says I have expressed an opinion different from Clairaut's on Voltaire's scientific capacity. Clairaut's judgment was confined apparently to subjects of pure mathematics; and I have only ventured to wish that either it had been expressly so limited, or that it had been so understood by Voltaire, whose capacity for experimental philosophy, though not for the mathematics, I ventured to consider was very great. Of this I have given the proofs, and M. Berville considers them as an important addition to what had hitherto been said of Voltaire.

Respecting the Life of Rousseau, his opinion is much more severe; but on this subject I never can hope to agree with a writer who manifestly regards

that individual as a great benefactor of his species, and as having waged a war against tyranny equally successful with Voltaire's against priestcraft. Rousseau's political works are wholly beneath contempt. No proofs are required to shew the ignorance and even incapacity of a writer whose notions of the representative system — the greatest political improvement of modern times—are such, that he holds a people to be enslaved during the whole interval between one election and another—a dogma which makes it utterly impossible for any free state to exist whose inhabitants amount to more than fifteen hundred or two thousand. But, in truth, it is not as a political writer that Rousseau now retains any portion of the reputation which he once enjoyed. His fame rests upon a paradoxical discourse against all knowledge, a second-rate novel, and an admirably written, but degrading, and even disgusting autobiography. The critic is very indignant at the grave censure which I pronounced on this last work, and on the vices by which it showed the author to have been contaminated. I deliberately re-affirm my opinion as formerly expressed on the subject; nor can I imagine a more reprehensible use of faculties, such as Rousseau certainly possessed, than the composition of a narrative, some parts of which cannot be read without horror and disgust by any person whose mind is ordinarily pure.

The Lives in the present volume require little prefatory remark, because they embrace hardly any

controversial matter. But I venture to advise the reader, that, even if prejudiced against the pretensions, or, it may be, against the practical conclusions, of the Political Economists, he should not turn from the subject of Adam Smith; and that, even though averse to geometrical studies, he should not be scared by the mathematical discussions connected with D'Alembert. For he will find that the subjects on which the great and well-established fame of Smith is founded have not been treated with any of the prejudices wherewith the Political Economists have been charged; and he will also experience no difficulty in apprehending the truths which it is the principal purpose of D'Alembert's Life to recommend, in so far as regards the important subject of mathematical pursuits, and the gratification which they are fitted to bestow. This last hope is one which I have peculiarly at heart. Nor do I think that I should have been induced to undertake the labour of these two volumes by any other consideration than the desire of recommending the study of the mathematics in both the great branches of the Greek Geometry and the modern Analysis—recommending it by a contemplation of such lives as those of Simson and D'Alembert.

Château Eleanor-Louise, Provence,
5th January, 1846

NOTE.—Upon my return to this country at the opening of the Session, I read over the Life of Adam Smith, and the Analysis of his great work, which had been written last autumn, at a time when I never could have expected the present practical discussion of the Corn Laws to come on before the work should be published. The observations delivered on that question, and the whole doctrine of Free Trade, were, therefore, prepared without any view to the controversy now going on; and I fear their tenor will not give much satisfaction to any party. My opinion is well known upon the subject; and that I neither expect any thing like the good which some hope, nor apprehend any thing like the evil which others dread, from the proposed alterations in the law, while of those alterations I highly approve. But I have resolved to publish the Life and the Analytical View, without the least alteration or addition, exactly as it was written during the calm of the last year; giving it as a treatise upon a subject of science, composed with only the desire to discover or to expound the truth, and without any view to the interests of any Party.

I am truly happy to announce my hope that a fuller Life of Sir J. Banks, being in such excellent hands as those of Mr. Dawson Turner, of Great Yarmouth, will be finished by that much and justly respected gentleman.

London, March 21st, 1846.

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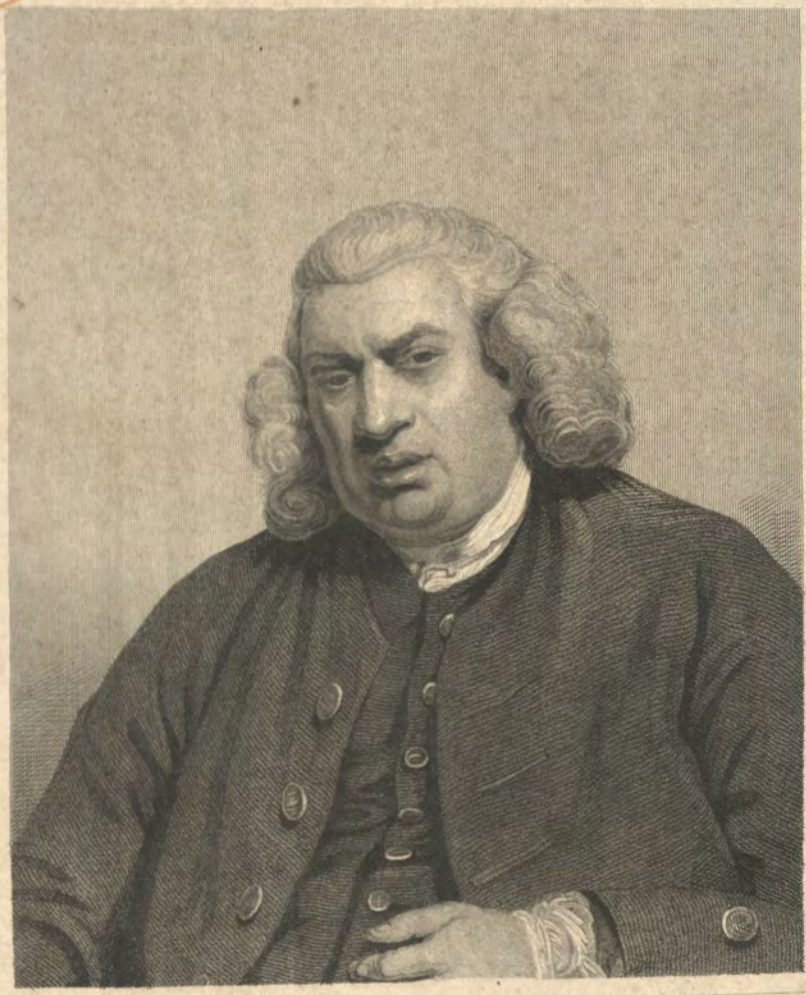
ERRATA.

Page 344, line 2 from bottom, *for* "parallax," *read* "horizontal parallax."
,, 407, ,, 2, *for* "the body," *read* "a fixed body."
,, 410, ,, 3, *for* "vo," *read* "dv."
,, 418, ,, 13, *for* "$\frac{d\,\mathrm{N}}{d\,y}$" *read* "$\frac{d\,\mathrm{N}}{d\,x}$"
,, 424, ,, 4, *for* "1740," *read* "1747."
,, ,, ,, 9, *for* "distance," *read* "disturbance."
,, 426, ,, 20, *for* "$(u^2$" *read* "$(h^2$"
,, 428, ,, 21, same correction.
,, 431, ,, 8, *for* "rate," *read* "ratio."
,, 436, ,, 24, *for* "at," *read* "as."
,, 451, ,, 1, *for* "accurate," *read* "inaccurate."

BRANCH



Engraved by J. Brown.

JOHNSON.

London. Henry Colburn, 1846.

MEN OF LETTERS

OF THE

TIME OF GEORGE III.

JOHNSON.

THE materials for writing the Life of Dr. Johnson are certainly more abundant than for the biography of any other distinguished person: not even excepting him whose Confessions reveal all that he himself could recollect, and chose to record of his own history; or him whose incessant activity and multiplicity of connexions, left fourscore volumes of his published works, and twenty of his private correspondence. We owe the great riches of the English Author's remains to the curiosity excited by his lively and pointed conversation, and the happy accident of his living for the latter part of his life in the society of a person eminently qualified, both by his tastes and his habits, to afford that curiosity an almost unlimited gratification. In the grateful remembrance of all who relish the pleasures of refined social intercourse, with the name Johnson is associated that of Boswell, as indissolubly as are those of Plato and Xenophon with the more remarkable name of Socrates in the minds of all who love philosophy; and there is perhaps added a zest to the collections of the English writer which the Athenian records possess not; we see the amiable and lively his-

torian figuring always in the group with his more stern idol, affording relief, by contrast, to the picture of the sage, and amusing with his own harmless foibles, which he takes a pleasure in revealing, as if he shared the gratification he was preparing for his unknown reader. His cleverness, his tact, his skill in drawing forth those he was studying, his admirable good humour, his strict love of truth, his high and generous principle, his kindness towards his friends, his unvarying but generally rational piety, have scarcely been sufficiently praised by those who nevertheless have been always ready, as needs they must be, to acknowledge the debt of gratitude due for perhaps the book of all that were ever written, the most difficult to lay down once it has been taken up. To the great work of Mr. Boswell, may be added some portions of Sir John Hawkins's far inferior, and much less accurate biography; the amusing but also somewhat careless anecdotes of Mrs. Piozzi, formerly Mrs. Thrale, and above all, the two interesting works of Madame D'Arblay, the celebrated Miss Burney, her own autobiography, and the life of her father. These works, but the two last especially, abound in important additions to that of Mr. Boswell; and what relates to Dr. Johnson certainly forms the principal value of them both*.

* We must, however, not pass over the light, somewhat lurid it must be owned, which the autobiography sheds on the habits and effects of a court life; the dreadful prostration of the understanding which may be seen to arise among at least the subordinate figures of the courtly group. I own that I cannot conceive this to be the universally resembling picture. My own experience and observation of many years, some of them passed in near connexion with our court, leads me to this conclusion. It must be added in extenuation of the absurdities so often laughed at in Boswell, that this amiable

In estimating the merits of Johnson, prejudices of a very powerful nature have too generally operated unfavourably to the cause of truth. The strongly marked features of his mind were discernible in the vehemence of his opinions both on political and religious subjects; he was a high tory, and a high churchman in all controversies respecting the state; he was under the habitual influence of his religious impressions, and leant decidedly in favour of the system established and protected by law. He treated those whose opinions had an opposite inclination, with little tolerance and no courtesy; and hence while these undervalued his talents and his acquirements, those with whom he so cordially agreed, were apt to overrate both. To this must be added, two accidental circumstances, from which were derived exaggerated opinions, both of his merits and his defects; the extravagant admiration of the little circle in which he lived producing a reaction among all beyond it; and the vehement national prejudices under which he laboured, if indeed he did not cherish and indulge them, prejudices that made his own countrymen prone to exalt, and strangers as prone to decry both his understanding and his knowledge. On one point, however, there is never likely to be any difference of opinion. While the exercise of his judgment will by all be allowed to have been disturbed by his prejudices, the strength of his faculties will be admitted by

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author furnishes quite her fair proportion of the matter of ridicule. Such weakness as marks many of her sentiments, such deeply seated vanity as pervades the whole, not only of her own, but of her father's memoirs, which are in truth an autobiography as much as a life of him, cannot certainly be surpassed, if they can be matched, in the less deliberate effusions of Mr. Boswell's avowed self-esteem.

all; and no one is likely to deny that he may justly be ranked among the most remarkable men of his age, even if we regard the works which he has left, but much more if we consider the resources of his conversation. This must be the result of a calm and candid review of his history, after all due allowance shall be made for the undoubted effects of manner and singularity in exalting the impression of both his writings and his talk.

Samuel Johnson was born 18th of September, 1709, at Lichfield, where his father, originally from Derbyshire, was a bookseller and stationer in a small way of business. His mother was of a yeoman's family named Ford, for many generations settled in Warwickshire. He inherited from his father a large and robust bodily frame, with a disposition towards melancholy and hypochondriacism, which proved the source of wretchedness to him through life. From his nurse he is supposed (though probably it was hereditary too,) to have caught a scrofulous disorder, of whose ravages he always bore the scars, which deprived him of the sight of one eye, and which, under the influence of the vulgar supposition so long prevalent, made his parents bring him to London that he might be touched by Queen Anne. His father was a man of respectable character and good abilities; and while he devoted himself to his trade, frequenting various parts of the country to sell his books, he seems to have had much pleasure in the diffusion of knowledge, and to have been himself knowing in several branches of ordinary learning. His mother was uneducated, but had a strong natural understanding, and a deep sense of religion, which she early instilled into her son. There was only one other child, a younger brother, who followed

the father's business, and died at the age of five-and-twenty. The family were of strong high church principles, and continued through all fortunes attached to the House of Stuart.

Johnson at a very early age shewed abilities far above those of his comrades. His quickness of apprehension made learning exceedingly easy to him, and he had an extraordinary power of memory, which stood by him through life. His school companions well remembered in after life his great superiority over them all; they would relate how when only six or seven years old, he used to help them in their tasks as well as to amuse them by his jokes, and his narratives, and how they were wont to carry him of a morning to school, attending him in a kind of triumph. The seminary in which he was educated for several years after, was Mr. Hunter's, and although he always considered the severity of that teacher as excessive, he yet candidly admitted that but for the strict discipline maintained, he should never have learnt much; for his nature was extremely indolent owing to his feeble spirits and broken health, and his habits of application were then, as ever after, very desultory and irregular. The school was, moreover, famous for a succession of ushers and schoolmasters hardly equalled in any other; six or seven who attained eminence in after life, all about the time of Johnson, having either taught or learnt under Mr. Hunter.

In his fifteenth year he went to Mr. Westworth's school at Stourbridge by the advice of his maternal cousin, Mr. Ford, a clergyman represented as of better capacity than life; and after a year passed there to no good purpose, he returned to Lichfield, where he whiled away his

time for two years and upwards, reading, in a desultory manner, whatever books came in his way ; a habit which clung to him through life, insomuch that fond as he was of poetry, he confessed that he never had read any one poem to an end. The result, however, of the time thus spent, and of his very retentive memory, was his acquiring a variety of knowledge exceedingly rare in very young men, and becoming acquainted with many writers whose works are little read by any one.

In 1728, being in his nineteenth year, he was sent to Oxford, and entered of Pembroke College. His father's circumstances were so narrow that this step never could have been taken without the prospect of some assistance from his friends ; and as few men who raise themselves from humble beginnings are found very anxious to claim the praise which all are so ready to bestow, so we find among the biographers of Johnson, a reluctance of the same kind, with respect to their hero, and a disposition to involve in obscurity, the contribution which must have been made to his college education. Mr. Corbet, a gentleman of Shropshire, is supposed by Sir John Hawkins to have supported him for the first year as his son's teacher; though this is denied by Mr. Boswell, who yet admits his father's inability to maintain him at Oxford. Some gentlemen of the cathedral at Lichfield afterwards contributed to his support. But that he suffered much from poverty during the time of his residence is certain ; and his inability to attend some course of instruction which he greatly wished to follow, from the want of fit shoes, is a fact related by those who remarked his feet appearing through those he wore, and who also have recorded his proud refusal

of assistance while in such distress. The pecuniary difficulties of his father increasing, or the aid of his friends being withdrawn, he could not longer remain at college, even in that poor condition; and after three years' residence he was under the necessity of retiring to Lichfield without taking a degree. But his veneration for the University, and above all, his love for Pembroke, remained by him ever after. When noting the number of poets who had belonged to it, he would cry out with exultation, "Sir, we are a nest of singing birds;" and to the latest period of his life, his choicest relaxation was to repair from London and pass a few days at the Master's Lodge.

During his residence, he passed the periods of vacation at Lichfield; and there is something peculiarly distressing in the account handed down, and indeed proceeding chiefly from himself, of the wretchedness which he suffered about this early age, in consequence of his morbid state of mind. The first of the violent attacks of hypochondria which he experienced was in 1729, in his twentieth year; and it seized upon him with such irritation and fretfulness, with such dejection and gloom, that he described his existence as a misery. The judgment appears never to have been clouded, nor the imagination to have acquired greater power over the reason, than to impress him with fearful apprehensions of insanity; for he never was under anything resembling delusion; and although a torpor of the faculties would often supervene, insomuch that there were days when he said he could not exert himself so as to tell the hour upon the town clock, yet even while suffering severely he had the power of drawing up a most clear, acute, and elegant account

of his disease in Latin for the opinion of his godfather, Dr. Swinfen, who was so much struck with it, that he, perhaps indiscreetly, shewed it to others; an act never forgiven by the author. He had recourse to various expedients to drive away this frightful malady, but in vain. Sometimes he would take violent bodily exercise, walking to Birmingham and back again; sometimes, but this was rather at a late period, he had recourse to drinking; and though he never admitted that this resource failed entirely, yet it may be presumed it did, both because such a practice always exacerbates the mischief in others, and because he for many years of his life entirely gave up the use of fermented liquors. He attained by experience some little control over the disease, probably by steering a judicious course between idleness and overwork, by being moderate in the enjoyment of sleep, and by attention to diet. But he never at any period of his long life was free from the infliction, so that melancholy was the general habit, and its remission was only by intervals comparatively short. What haunted him was the dread of insanity; and he was ever accustomed to regard his malady as a partial visitation of that dreadful calamity. He never believed himself deranged, but he never hesitated both in writing and speaking to call his mental disease by the name of madness without any circumlocution, though he only meant to express that it was a morbid affection.

The accounts which we have, and also upon his own authority, of his early religious history, are interesting. Although his mother's precepts and example gave him as strong a bias towards religion as most children can have, yet he considered her to have somewhat overdone her

work, especially by requiring the Sabbath to be spent in "heaviness," in confinement, and in reading the 'Whole Duty of Man', which neither interested nor attracted him. From nine to fourteen years of age he was wholly indifferent to sacred subjects, and had a great reluctance to attend the service of the Church. From that time till he went to Oxford, five years later, he was a general "talker against religion," as he described himself, "for he did not much think against it." At Oxford he took up Law's 'Serious Call to a Holy Life,' expecting to find a subject of ridicule; but he "found Law quite an overmatch for him," and from that time his belief was uninterrupted, and even strong. The nature of his melancholy, and the hardships of his life, worked with his convictions to make him place his reliance upon a future state of happiness, and few men have perhaps ever lived in whose thoughts religion had a larger or more practical share.

While at Oxford his reading continued to be desultory, though extensive, and his College tutor being a person of amiable character, but moderate endowments, he was left much to himself in the conduct of his studies. The only application which he appears to have given was to Greek, and his attention even here was confined to Homer and Euripides. Before he came to College he had exercised himself much in writing verses, and especially in translating from the Latin; the specimens which remain shew sufficiently his command of both languages, and their closeness is worthy of praise. His translation of Pope's 'Messiah' into Latin verse has been much commended, and by Pope himself among others; but Johnson never regarded it as possessing any value. Pope's

observation was indeed highly laudatory. "The writer of this Poem," said he, "will leave it doubtful in after-times which was the original, his verses or mine."

On his return to Lichfield he found his father's affairs in a state of hopeless insolvency; and before the end of the year (1731) he died. A few months more were spent in the place; and he frequented now, as he had done before, a circle of excellent provincial society, of which accomplished and well-bred women of family formed an important part. The accounts of his conversation at this time all agree in representing it as intelligent, but modest; his manner awkward enough as far as regarded external qualities, but civilized; and his whole demeanour free from that roughness and even moroseness which it afterwards acquired, partly from living much alone during his struggles for subsistence, partly from the effects of his mental and nervous malady; in no little degree, also, from the habit of living in a small circle of meek and submissive worshippers.

In the summer of 1732 he accepted an appointment as usher to a school at Market Bosworth; but to the labour of teaching he never could inure himself; and it was rendered more intolerable by the duty which devolved upon him of acting as kind of lay-chaplain to Sir Walter Dixie, the patron of the school, a situation in which he was treated with haughtiness and even harshness. To the few months which he thus passed he ever after looked back, not merely with aversion, but with a kind of horror.

He now removed to Birmingham, where he was employed by Warren, a bookseller, and the first who settled in that great town. He carried on a newspaper in which Johnson wrote, who also translated from the

French Father Lobo's 'Voyage to Abyssinia.' This work has been carefully examined, to discover if any traces can be perceived of his peculiar style; but nothing of the kind appears. The preface, however, is as completely clothed in his diction as any of his subsequent productions; and shews that he had then, in his twenty-fifth year, formed the habit of sturdily thinking for himself and rejecting all marvellous stories, at least in secular matters, which ever after distinguished him, as well as of tersely and epigrammatically expressing his thoughts. Mr. Boswell and Mr. Burke examined this piece together, and the following portion of the passage on which they pitched as a proof of his early maturity in that manner may serve to gratify the reader, and to prove the truth of the foregoing remark.

"This Traveller has consulted his senses and not his imagination. He meets with no basilisks that destroy with their eyes; his crocodiles devour their prey without tears; and his cataracts fall from the rocks without deafening the neighbouring inhabitants. The reader will here find no regions cursed with irremediable barrenness or blessed with spontaneous fecundity; no perpetual gloom or unceasing sunshine; nor are the natives here described either devoid of all sense of humanity or consummate in all private or social virtues. Here are no Hottentots without religious piety or articulable language, no Chinese perfectly polite and completely skilled in all sciences; he will discover what will always be discovered by a diligent and impartial enquirer, that where human nature is to be found, there is a mixture of vice and virtue, a contest of passion and reason; and that the Creator doth not appear partial in his distributions, but

has balanced in most countries their particular inconveniences by particular favours."

For the next three years he lived between Birmingham and Lichfield, and having formed the acquaintance of Mr. Porter, a mercer in the latter town, he became, after his decease, attached to his widow, whom he married in the summer of 1736. She is described as of vulgar and affected manners, and of a person not merely without attraction but repulsive, plain in her features, which, though naturally florid, she loaded with red paint as well as refreshed with cordials, large in her stature, and disposed to corpulence. To this picture drawn by Garrick, one of her friends has added, that she was a person of good understanding and great sentimentality, with a disposition towards sarcasm; and it is certain that the empire over her husband, which occasioned their marriage, subsisted to her decease, sixteen years after, and so far survived her that he continued for the rest of his life to offer up prayers for her soul, beside ever keeping the day of her death as a fast with pious veneration.

As she brought him but a few hundred pounds of fortune, her husband having died insolvent, it was necessary that the imprudence of the match should be compensated by some exertion to obtain a living. They therefore opened an Academy at Edial, near Lichfield; but only three pupils presented themselves, of whom Garrick and his brother were two; and after a few months of vainly waiting for more, Johnson and Garrick set forward to try their fortune in London, whither Mrs. Johnson followed him some months later.

It was in the Spring of 1737 that he came to reside

in London; and he now entered upon a life of as complete dependence on literary labour as is to be found in the history of letters. No man ever was more an author by profession than he appears to have been for a quarter of a century; and he suffered during that period all the evils incident to that precarious employment. Of these the principal certainly is, that there being no steady demand for the productions of the pen, the author is perpetually obliged to find out subjects on which he may be employed, and to entice employers: thus, unlike most other labourers, stimulating the demand as well as furnishing the supply. Hence we find Johnson constantly suggesting works on which he is willing to be employed, and often failing to obtain the concurrence of his publisher. For some years, before he had left Lichfield, he had made unsuccessful attempts of this kind. A proposal to publish Politian's Latin Poems was printed by him in 1734, in conjunction with his brother, who had succeeded to his father's shop. Notes on the history of Modern Latin Poetry and a life of Politian were to be subjoined; but, as might be easily foreseen, this project met with no kind of encouragement. Indeed it would hardly succeed in our own times as a speculation for profit to the author. The success of the 'Gentleman's Magazine' next seems to have struck him as affording the hope of a connexion with Mr. Cave, its conductor; and to him he addressed a letter under a feigned name, proposing to write articles the subjects of which he thought he could suggest so as to benefit the work, hinting also at other literary schemes which he was prepared to unfold "if he could be secure from having others reap the advantage of what he should suggest."

But it does not appear, though Cave answered the letter, that his reply was so favourable as to produce any result. Upon settling in London, however, he propitiated that respectable publisher with some very middling sapphics in his praise, which were inserted in the Magazine, and he was from thenceforth employed pretty regularly in writing criticisms, biographies, and other papers, so that for many years this miscellany formed the principal source of his slender income. He, however, eked it out with other occasional writings. A new translation was undertaken at his suggestion by Dodsley and Cave, of Father Paul's celebrated 'History,' with Le Courayer's Notes, which had been recently added to the French edition. It appears that Johnson was paid in small sums, about fifty pounds, on account of this work, which was given up in consequence of another being announced, and, by a singular coincidence, also the production of a Samuel Johnson, who was patronized by the Clergy. He, moreover, wrote prefaces to different books, and, soon after he settled in London, he published the admirable translation of Juvenal's Third Satire, entitled 'London,' which at once gave him a high place among the poets of the day. It was followed some years later by the 'Vanity of Human Wishes,' an Imitation of the Tenth. It is known that Pope at once expressed his hearty admiration of the 'London' in no measured terms, feeling none of the petty jealousy which might have been occasioned by the fickle multitude's exclamation, "Here is arisen an obscure poet greater than Pope;" his remark was, "Depend upon it, he will soon be drawn out from his retreat."

Nothing can be more painful than to contemplate the struggles in which these years of his penury were

passed, more especially the earlier ones, after he lived in London. He dined at a boarding-house or ordinary for eight pence, including a penny which he allowed the servant. The tone of his correspondence with Cave ever and anon lets his wants appear. One letter subscribed with his name, has the significant, it is to be feared the literary word, *impransus*, prefixed to the signature. Another in 1742, while the Fra Paolo was going on, mentions his having "received money on this work, 13*l.* 2*s.* 6*d.*, reckoning the half guinea of last Saturday." In the postscript he adds, "If you could spare me another guinea I should take it very kindly, but if not I shall not think it an injury." All the little valuables, including a small silver cup and spoon given him by his mother when he was brought up to be touched for the evil, were offered for sale, to buy necessaries in the pressing wants of himself and his wife, and the spoon only was kept. Nay, an affecting anecdote is furnished by Mr. Harte, author of Gustavus Adolphus's Life, that having dined with Cave and commended one of Johnson's writings, Cave afterwards told him how happy it had made the author to hear him thus express himself. "How can that be," said Harte, "when there were only our two selves present?" "Yes," said Cave, "but you might observe a plate with victuals sent from the table. Johnson was behind the screen, where he ate it, being too meanly dressed to appear." It is truly afflicting to think that the work thus praised was his beautiful poem of 'London.' The penury too in which he existed seems to have long survived the obscurity of his earlier life in London. As late as 1759, after he had been two-and-twenty years in the world of letters, and had attained great

eminence as an author in several of its provinces, while his mother was on her death-bed, he had to borrow of his printer six of the twelve guineas he sent to supply her pressing wants; and in the evenings of the week after her decease, he wrote his 'Rasselas,' in order to defray the expenses of her funeral and discharge a few debts which she had left. He received a hundred pounds for it.

Nor must it be forgotten that to these miseries, the general lot of the literary man's life, was added in Johnson's the far worse suffering from his constitutional complaint, a suffering bad enough in itself if the companion of ease and of affluence, but altogether intolerable when it weighs down the spirits and the faculties of him whose mental labour must contribute to the supply of his bodily wants. The exertion, no doubt, when once made, is the best medicine for the disease; but it is the peculiar operation of the disease to render all such exertion painful in the extreme, to make the mind recoil from it, and render the intellectual powers both torpid and sluggish, when a painful effort has put them in motion. I speak with some confidence on a subject which accident has enabled me to study in the case of one with whom I was well acquainted for many years; and who either outlived the malady, which in him was hereditary, or obtained a power over it by constant watchfulness, diligent care, and a fixed resolution to conquer it. As in Johnson's case, it was remittent, but also periodical, a thing not mentioned of Johnson's; for in my friend's case it recurred at intervals, first of six months, then of a year, afterwards of two and three years, until it ceased; and the duration of the attack was never more than of eight or ten months. It

seemed wholly unconnected with bodily complaint, though it appeared to interfere with the functions of the alimentary canal; and it was relieved by strict attention to diet, and by great temperance in all particulars. There was, as in Johnson's case, no kind of delusion, nor any undue action of the imagination; but unlike his, it was wholly unattended with apprehensions or fears of any kind. There was also no disposition to indulgence of any kind except of sleep; and a particular aversion to the excitement of fermented liquors, the use of which indeed never failed to exacerbate the malady, as Johnson, too, from his confession to Mr. Boswell, appears to have found, after trying them in vain to alleviate his suffering. The senses were not at all more dull than usual, and there was as much relish both of physical and mental enjoyment. But the seat of the disease being in the mind, and in the mind wholly, independent of and unaffected by any external circumstances, good fortune produced no exhilaration, afflictions no additional depression. The attack commenced sometimes suddenly, that is, in a few days, and not seldom was foretold by dreaming that it had begun. The course was this. The active powers were first affected; all the exertions of the will becoming more painful and more difficult. This inertness next extended itself and crept over the intellectual faculties, the exercise of which became more distasteful and their operations more sluggish; but the results, though demanding more time, were in no respect of inferior quality. Indeed, the patient used sometimes to say that when time was of no importance, the work was better, though much more painfully done. The exertions resolutely made and steadily persevered in, seemed gradually

to undermine the disease, and each effort rendered the succeeding one less difficult. But before he became so well acquainted with the cure, and made little or no exertion, passing the time in reading only, the recovery took place nearly in the same manner as afterwards under a more severe regimen, only that he has told me that to this regimen he ascribed his ultimate cure after obtaining a constantly increasing prolongation of the healthy intervals. The recovery of the mind's tone always took place in the reverse order to the loss of it; first the power returned before the will; or the faculties were restored to their vigour, before the desire of exerting them had come back. It is much to be lamented that no one examined Dr. Johnson more minutely respecting his complaint; for he never showed any disposition to conceal the particulars of it. The sad experience which he had of its effects appears frequently to have been in his thoughts when writing; and it can, I conceive, be more particularly traced in his account of Collins,* whose disease became so greatly aggravated that he was placed under restraint. The malady in Johnson appears never to have reached to so great a height as in the case of Collins; and indeed of Sir Isaac Newton, who was also subject to it, and whose faculties at one period of his illustrious life it entirely clouded over.† Chance having thrown in my

* See 'Lives of the Poets,' vol. iv.

† Some controversy has arisen on this subject, occasioned by M. Biot's statement, (in his Biography of Newton,) taken from Huyghens, who had it from Collins. There is also a partial confirmation in Abraham de la Pryne's 'Diary,' and in Babington's 'Letters.' But I found among Locke's papers twenty years ago, a letter which seems to leave no doubt on the subject. Newton had written a letter to Locke, accusing himself (Newton) of having

way the case above described, I have thought it right to record it for the benefit of those who may be similarly afflicted; and if any one who may be suffering under it is desirous of further information, I believe I shall be able to procure it. Dr. Baillie was at one time consulted, but declared that the mental and bodily regimen which had been adopted, were the best that occurred to him; only he strongly recommended horse exercise, and an abstinence from hard work of all kinds, neither of which prescriptions, as I have since understood, were followed. He had once known a case much resembling this, and which also terminated favourably, by the disease, as it were, wearing itself out.

While Johnson was carrying on manfully and independently and even proudly this arduous struggle, induced by the natural desire of obtaining some less precarious employment which might suffice for his support, he listened to an offer of the mastership of Appleby Grammar School, in Staffordshire. The salary was only sixty pounds a year, but he would gladly have accepted this with the labour of teaching, however hateful to him, that he might escape from the drudgery and the uncertainties of a poor author's life. Unfortunately the rules of the foundation required that the master should have the degree of M.A., and after a fruitless attempt through Lord Gower to obtain this from the University of Dublin,

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thought and spoke ill of him, and asking his pardon. Locke immediately answered it in a letter which has been much and justly admired. Newton replies, that he cannot conceive to what Locke alludes, as he has no recollection of having written to him; but adds that for some time past he had been out of health owing to a bad habit of sleeping after dinner.

he was forced to abandon the scheme. This took place in 1739; and when the attempt failed, he made another effort equally unsuccessful to practise as an advocate in Doctors' Commons, the want of a still higher degree proving there an insuperable obstacle.

Among his contributions to the 'Gentleman's Magazine' are the accounts which he drew up of the debates in Parliament. They were given as proceedings in the "Senate of Lilliput;" the squeamishness of parliamentary privilege men, even in those days, not permitting them to suffer an open violation of the Standing Orders, which their courage would not let them enforce. During the three years 1740, 1741, and 1742, he carried on this alone, obtaining only such help or hints as he could pick up from frequenting a coffee-house in the neighbourhood of the two Houses, and from original communications made by the speakers themselves. The style of the whole is plainly Johnson's own, and so was by far the greater part of the matter. The supposed speech of Lord Chatham, in answer to Horatio Walpole's attack on his youth, is entirely Johnson's, as every reader must perceive, and as he never affected to deny. Yet the public were, for a while, deceived; and as soon as he discovered that these compositions passed for genuine, he at once gave them up, being resolved that he should be no party to a deception. Mr. Boswell says (I. 128), that a short time before his death, he "expressed his regret at having been the author of fictions which had passed for realities." It is singular enough that any person pretending to write on such subjects should have had the simplicity to praise Johnson for the success with which he had "exhibited the manner of each particular

speaker"—there being no manner exhibited in any of the speeches, except one, and that the peculiar manner of Dr. Johnson.

During the first five years of his residence in London he appears to have associated more with Savage than with any other person; and this connection, the result of that unfortunate, but dissipated, and indeed reckless individual's agreeable qualities, was the only part of his life upon which Johnson had any occasion to look back with shame; though, so permanent was the fascination under which he was laid by the talents and the knowledge of high life which he found, or fancied he found, in his companion, that he never would own his delusion—never, perhaps, sufficiently felt the regret he ought to have experienced for the aberration. The idle, listless habits of the man accorded well with his own; their distresses were nearly equal, though the one seemed degraded from the station he was born to, while the other was only unfortunate in not having yet reached that which he was by his merits entitled to. Irregular habits, impatience of steady industry, unequal animal spirits, a subsistence altogether depending on their own casual exertions—and altogether precarious, had these exertions been far more sustained—were common to them both. The love of drinking was much more Savage's vice than Johnson's, though, under the influence of his own malady and his friend's example, he soon fell into it, without, however, indulging in so great excesses. But the laxity of the poet's principles, and his profligate habits, made an inroad on the moralist's purity of conduct, for which his temperament certainly paved the way; the testimony of his provincial friends to the

chastity of his private life, has not been echoed by those who knew him in London; and Mr. Boswell has delicately, but pointedly described those "indulgences as having occasioned much distress to his virtuous mind" (I. 143). When we are told that he would often roam the streets with Savage after a debauch, which had exhausted their means of finding a bed for the night, and which, when the weather proved inclement, drove them to warm themselves by the smouldering ashes of a glass-house—when we reflect that this companion had not been reclaimed from such courses by killing a man in a brawl arising immediately out of a night thus spent—when we consider that one so poor must have sought the indulgences so plainly indicated by his biographer, his all but adoring biographer, in their more scrupulous form—and when to all this is added the recollection (foreign to Savage's history) that Johnson was a married man, with whom affection only had made a virtuous woman share the poorest of lots—surely we may be permitted to marvel at the intolerance with which the defects of others were, during the rest of his days, ever beheld by him, as if he was making a compensation for his own conduct by want of charity to his neighbours. But, above all, have we a right to complain that the associate of Savage, the companion of his debauches, should have presumed to insult men of such pure minds as David Hume and Adam Smith—rudely refusing to bear them company but for an instant, merely because he regarded the sceptical opinions of the one with horror, and could not forgive the other for being his friend.

Savage died in prison at Bristol, miserably as he had lived, July, 1743, in his forty-sixth year. He had been

arrested for a debt of eight pounds. Many who knew him were willing to subscribe for his relief; his wayward temper induced him to choose this moment for writing a satire on the place where his friends resided; and he expired, after six months' confinement, not without the suspicion that a letter from Pope, taxing him, as he said, unjustly, with great ingratitude, had brought on the fever of which he died. Johnson was not a man whose friendship for any person, however misplaced, or admiration of his talents, however exaggerated beyond the truth, would cease when he was laid low; and he immediately set about exhibiting both in that 'Life,' which has been the object of so much admiration, and which certainly has all the merits, with most of the defects that belong to his style, both of thinking and of writing. The plain language in which he accused Savage's mother, Lady Macclesfield, after her divorce married to Colonel Brett, of unnatural cruelty to her son, of scandalous licentiousness, nay, of attempts to cause the death of the child whose only fault towards her was his being the living evidence of an adultery which she herself avowed, in order to annul her first marriage, can hardly be supposed to have been suffered, at a time when all libels were so severely dealt with by the parties attacked and by the Courts; but the reason probably was, that one of the charges was notoriously admitted by the person accused, and the blacker imputation could not have been denied without reviving the memory of the scandal in which the whole had its origin.*

* One passage in the 'Life' seems to dare and defy her. After charging her with "endeavouring to destroy her son by a lie, in a

At the time of his associating with Savage the circle of Johnson's acquaintance was very limited, and those whom he knew were in humble circumstances. One exception is afforded in Mr. Hervey, son of Lord Bristol, of whom he always spoke with admiration and esteem, although he admitted the profligacy of his friend's life. Mr. Hervey left the army and went into the church; nor can it be doubted that his pleasing manners, the talents, which like all his race he possessed, and his familiarity with the habits of high life, formed an attraction which Johnson could not at any time resist. "Call a dog, Hervey," he would say, "and I shall love him."* The friendship which, soon after his removal to London, he formed with Reynolds, can scarcely be reckoned a second exception; for at that time Sir Joshua's circumstances were so little above his own, that an anecdote is preserved of some ladies, at whose house the author and the artist happened to meet, feeling much disconcerted by the arrival of a Duchess while "they were in such company." Johnson, perceiving their embarrass-

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manner unaccountable, except that the most execrable crimes are sometimes committed without apparent temptation," he adds, "This mother is still alive, and may perhaps even yet, though her malice was so often defeated, enjoy the pleasure of reflecting that the life which she so often endeavoured to take away was at least shortened by her unnatural offences." She must have been near seventy at this time, and the chief scandal of her life had been fifty years before.

* The persons described by his black servant as most about him some years later, and when he had extended his acquaintance, were Williams, an apothecary, with whom he used to dine every Sunday, Mrs. Masters, a poetess, that lived in Cave's house, some booksellers and printers, and copyists, one or two authoresses, and Mrs. Gardner, the wife of a tallow chandler.

ment and offended with it, took his revenge by affecting to be a common mechanic, and asking Reynolds "how much he thought they could earn in a week if they wrought to their utmost."

The ordinary literary labour of his life in magazines, reviews, prefaces, and smaller essays, for the booksellers, in correcting the works of authors, and even superintending the press for publishers, appears to have been, during these five-and-twenty years, carried on almost like a trade, and without any scruples as to receiving the most humble remuneration. Thus, on one occasion, he received from Dodsley a guinea for writing a prospectus to a new weekly paper; and on another he praised the generosity of some Irish dignitary, who gave him ten guineas for correcting a bad poem, in which he blotted out many lines, and might, he said, have blotted many more. Beside the more regular employment of the 'Gentleman's Magazine,' he wrote a number of articles for the 'Literary Magazine,' in 1756; among others his review of Soame Jenyns on the 'Origin of Evil,' reckoned, and justly, one of his happiest performances, perhaps his best prose work, and which stands high in the first class of severe, but not unjust criticisms. But his humbler labours during this period were relieved by works of a much higher order, one of which, the 'London,' has been mentioned. In 1749 he produced his imitation of the Tenth Satire, under the title of the 'Vanity of Human Wishes,' and greatly extended his poetical reputation by that admirable piece. The price paid for the copyright, however, did not exceed fifteen guineas. Nor indeed could a work of such moderate size easily obtain a large remuneration.

In the spring of the same year his friend Garrick having become manager of Drury Lane Theatre, he brought out for him 'Irene,' a tragedy, which had been begun at Lichfield, and was finished afterwards partly in London, partly at Greenwich, where he resided for some time. Its success was only moderate; for an awkward incident happened on the first night, when the audience positively refused to let the heroine be strangled on the stage, crying out "murder," in a tone that made it necessary to omit the execution, or at least let it take place behind the scenes; and although the zealous friendship of the manager obtained for it nine nights of representation, the play then at once dropped, being found wholly deficient in dramatic interest, perhaps too, a little tiresome from the sameness of its somewhat heavy and certainly monotonous diction. Slender as was this success, it had been much smaller still but for many alterations on which Garrick insisted. These were vehemently resisted by the author, with a want of sense and of ordinary reflexion exceedingly unnatural to one of his excellent understanding, and who might easily have seen how very far superior the practical skill and sense of Garrick must be to his own on such subjects. It became even necessary to call in the mediation of a friend, and after all, several requisite changes were not made. However, the benefit of three nights' profits was thus, by the rules of the stage, secured to the author, and the copyright being sold to his friend Dodsley produced him a hundred pounds more. A ludicrous folly of his occurred when this play was first brought out; he must needs appear in a handsome dress, with a scarlet and gold-laced waistcoat, and a gold-laced hat, not only

behind the scenes but in the side boxes, from an absurd notion that some such finery was suited to a dramatic author. Certainly, if the feelings of the house in that day resembled those of our own times, this proceeding considerably increased the risk which he ran from his plot, his verse, and his bowstring. A pleasant story is related of his shewing the first two acts of his tragedy to a friend of his settled at Lichfield, and holding an office in the Consistory there, Mr. Walmsley, a man of much learning, and who being greatly his superior in age as well as station, had patronised him in his early years. When he made the natural objection, that the heroine was already as much overwhelmed with distress as she well could be in the result, "Can't I," asked Johnson archly, "put her in the spiritual court?"

The 'Rambler' was another of the more permanently known works with which this ever active period of his life was diversified. It was published twice a-week during the years 1750 and 1751. The 'Idler,' a similar work, appeared in Newbury's 'Universal Chronicle,' a weekly paper, in 1758 and 1759. Both these works were conducted by Johnson with hardly any assistance from the contributions of friends; and the papers were written with extraordinary facility, being generally finished each at one sitting, and sent to the press without even being read over by the author. It is indeed related of the 'Idler,' that being at Oxford when a paper was required, he asked how long it was before the post went, and being told half an hour, he said, "Then we shall do very well;" and sitting down, wrote a number, which he would not let Mr. Langton read, saying, "Sir, you shall

not do more than I have done myself." He then folded the paper up and sent it off.

The great work, however, upon which he was about this time constantly engaged was his 'Dictionary,' of which the first announcement was made in 1747, a year or more after he had been at work upon it; and the final publication in two volumes folio, with an elaborate Preface and Grammar, took place in 1755. The Prospectus had been inscribed to Lord Chesterfield, then (1747) Secretary of State, and had received, when shewed him in manuscript, that able and accomplished person's high approval. It should seem that Johnson had called upon him afterwards and been refused admittance, a thing far from inexplicable when the person happened to be a Cabinet Minister in a laborious department. He had probably not courted his further acquaintance by invitations, but quarrel there was not any between the parties; and when the 'Dictionary' was on the point of appearing, Lord Chesterfield wrote two witty and highly laudatory papers upon it in the 'World,' strongly but delicately recommending the expected work to all readers and all purchasers. Johnson's pride took fire, and he wrote that letter which is so well known, and has been so much admired for its indignant and sarcastic tone, but which, everything considered, is to be reckoned among the outrages committed by the irritability of the literary temperament. Nor can anything be more humbling, if it be not even ridiculous enough at once to bring the sublime of the epistle down to a very ordinary level, than the unhappy Note which Mr. Boswell's candour and love of accuracy has subjoined,—that Johnson once confessed to Mr. Langton his having received ten pounds

from the Earl, but "as that was so inconsiderable a sum, he thought the mention of it could not properly find a place in a letter of the kind this was,"—referring to the passage which speaks very incorrectly of his having received from Lord Chesterfield "not one act of assistance, one word of encouragement, or one smile of favour." (I., 237.) It seems almost as incorrect to say, that he had never received one smile of favour; for it is certain that he had been admitted to his society and politely treated. He described him (IV., 353) as of "exquisitely elegant manners, with more knowledge than what he expected, and as having conversed with him upon philosophy and literature." The letter which he wrote appears to have been treated with indifference, if not with contempt, by the noble Secretary of State; for he shewed it to any one that asked to see it, and let it lie on his table open that all might read who pleased. The followers of Johnson quote this as a proof of his dissimulation; possibly he overdid it; but they should recollect how little any one was likely to feel severely hurt by such a composition, when he could with truth mention, even if he should not choose to do so, that he had given the writer ten pounds without giving him the least offence.

The stipulated price for the 'Dictionary' was 1575*l.*; but he had to incur considerable expense in the preparation of it for the press, by having the extracts copied, as well as in the purchase of books which he was obliged to consult. He had for several years to employ three or four amanuenses or clerks, who occupied a room in his house fitted up like an office or a counting-house. In all he employed six, for whom his kindness ever after is known to have been unceasing, and his bounty quite

equal to his means of rewarding them. It has also been observed as a proof of his national prejudices being capable of mitigation, that five of the six were Scotchmen. Of the money which he received for this work nearly the whole was anticipated, being received and spent for his support while the composition of the book was going on.

During the laborious period of his life which we have been surveying, he had sustained two losses which deeply affected him,—by his mother's death in 1759, of which I have spoken, and his wife's in 1752, an affliction which deeply impressed itself on his mind. He was not only entirely overwhelmed with grief at the moment of her decease, but continued ever after to mourn for her, and to pray for her soul, which he appears to have thought destined to a middle state of existence before its everlasting rest, although he always put his supplication doubtfully or conditionally. After this loss he received into his lodgings Miss Williams, a maiden lady, daughter of a Welsh physician, who had left her in poor circumstances; and she afterwards became blind. She was a person of excellent understanding and considerable information, but of a peevish temper, which he patiently bore, partly because her constant society was a resource against his melancholy tone of mind, and partly because he really had a compassionate disposition. He could only afford to give her lodging, she finding out of her scanty means her own subsistence, which he occasionally aided by gifts. She died a year before his own decease. Mrs. Desmoulines was the daughter of his godfather, Dr. Swinfen, and widow of a writing-master; her, too, Johnson received for many years in his house with her

daughter, though his rooms were so small, that she and Miss Williams had to live in one apartment. The only satisfaction apparently which he could receive from the society of this lady, was the gratification of his charitable disposition; and he made her an allowance of near thirty pounds a-year from the time that he received his pension.* She survived him.

Robert Levett, a poor apothecary, lived with him in a similar way almost from the time he came to London. He practised among the poor for very small sums; but it was one of Johnson's ignorant prejudices, partly founded on his contracted knowledge of scientific subjects, partly from his not unamiable bias in favour of his friends, that he never could be satisfied with the skill of any medical attendant if Levett did not also assist their care. He died two years before Johnson, who wrote some very affecting verses to the memory of this humble friend. It was among Johnson's fancies to suppose he knew something of medicine and chemistry, because he read occasionally in his accustomed desultory manner parts of old-fashioned books on these subjects; and he even used to make experiments without any method or any acquaintance with the subject, upon mixing, and boiling, and melting different substances, and even upon distilling them. But his knowledge of all the parts of natural science was extremely limited and altogether empirical. Doubtless Levett's conversation was on these

* The temper and dispositions of his poor inmates were far from conducing to their own comfort or to his peace. He describes them in one of his letters to Mrs. Thrale:—"Mrs. Williams hates every body; Levett hates Desmoulines, and does not love Williams; Desmoulines hates them both; Polly loves none of them."

matters perfectly level to his companion's, and quite as much as he could bear.

Johnson was now in his fifty-fourth year, and had attained a very high, if not the highest station among the literary men of his age and country. Goldsmith had not yet reached the eminence which he afterwards attained. Burke as a man of letters was but little known. Gibbon had not appeared. Hume and Robertson belonged to another part of the island; and Johnson had not only distinguished himself both as a poet and a prose writer, but he had conferred upon English literature the important benefit of the first even tolerably good dictionary of the language, and one the general merit of which may be inferred from the fact, that after a lapse of nearly a century, filled with the monuments of literary labour incalculably multiplied in all directions, no similar work has superseded it. The struggle for subsistence in which he had lived so long, and which he had so long nobly maintained without stooping to any degrading acts, very little even to the resource now so invariably resorted to by literary men, the occupations of party, either in Church or State, had continued during five-and-twenty years with but little intermission, and when long past the middle age, and beginning to feel the effects of time upon his powers of exertion, a proposal was made without his solicitation, or even knowledge, by Mr. Wedderburn, then a rising man at the bar, (afterwards Lord Loughborough,) to the Prime Minister, Lord Bute, who received it favourably, and acted upon it promptly. A pension of three hundred a year was granted to him, and it was granted without the least reference to political considerations—the Minister declaring deliberately, that no ser-

vices whatever, of any kind, were expected in consideration of the grant; that it had reference to his past labours alone, and that whatever political tracts he might have written, they were not taken into the account, because it was believed that he had, in the composition of them, only followed the bent of his inclination and expressed his unbiassed opinions.

Nothing could be more opportune than this grant; nothing more entirely change the whole aspect of his situation. When we consider that it put him in possession of a much larger free income, without any exertion whatever, than he had ever been able to earn by a life of hard labour, we at once perceive that there could hardly have been wrought a greater revolution, or a happier, in any man's fortunes. The delicate manner in which the grant was bestowed, heightened the obligation; and, indeed, something might be required to soothe the feeling with which he must have regarded his exposing himself to the taunts of party, and the envy of disappointed men; for he had, but a few years before, gone out of his way to define a pensioner, "a slave of state hired to obey a master," and a pension, "pay given to a state hireling for treason to his country."

The change in his circumstances of course produced as great a change as possible in his habits. He no longer laboured as before to gain money; nor during the remaining twenty-two years of his life do we find him composing any considerable number of works, even for his amusement. His edition of Shakspeare was published in 1765, but begun twenty years earlier, and it had been almost all finished before the grant. He wrote his two pamphlets, 'Taxation no Tyranny,' and 'On the Falkland

Island Dispute,'—works of little labour; and the 'Lives of the Poets,' including that of Savage, and several other pieces long before printed by him, was the only work of any consequence which his later years produced.

He now indulged more than ever in desultory reading, and in conversation, which appeared necessary to his existence. Solitude oppressed him, by leaving him a prey to his constitutional malady of low spirits. He was especially afraid of being left alone in the evening, and therefore loved to pass his time in one or other of the clubs, which he founded for the purpose of having some such resource on stated days. Of these, one attained great eminence, from the number of distinguished men who belonged to it; and it exists at this day. Reynolds, Goldsmith, Burke, Fox, Gibbon, Windham, Beauclerk, Sir William Scott, Canning, were among its members. But he had other weekly clubs of less fame, and he once desired to have one established in the City, which was accordingly done. He somewhat enlarged the circle of his acquaintance as his life became so much less laborious, and he made more frequent excursions to the country, beside going for a few weeks to Paris, and making the tour of Scotland and the Hebrides. His acquaintance with Mr. Boswell began in 1763, and their intercourse was continued till his death, as often as that gentleman happened to be in London. With Mr. Beauclerk and Mr. Langton, his friendship had commenced ten years earlier, and with Sir Joshua Reynolds nearly twenty; with Garrick he had been on intimate terms when he was his pupil, and their friendship had continued ever since his arrival in London. It was one of his peculiarities that he never would say much in favour of his old friend and pupil, but never

would allow others to say anything against him. He must have a monopoly of the censure. Miss Burney relates a diverting instance of this in her Memoirs of her father. It had been observed that the great actor was chagrined at the King and Queen receiving coldly his private reading of 'Lethe,' which they had commanded. "Sir," said Dr. Johnson, "he has no right, in a royal apartment, to expect the hallooing and clamour of the one shilling gallery. The King, I doubt not, gave him as much applause as was rationally his due. And, indeed, great and uncommon as is the merit of Mr. Garrick, no man will be bold enough to assert that he has not had his just proportion, both of fame and profit. He has long reigned the unequalled favourite of the public; and therefore nobody, we may venture to say, will mourn his hard lot, if the King and the royal family were not transported into rapture upon hearing him read 'Lethe!' But yet, Mr. Garrick will complain to his friends; and his friends will lament the King's want of feeling and taste; but then, Mr. Garrick will kindly excuse the King—he will say that his Majesty—might, perhaps, be thinking of something else! that the affairs of America might, possibly, occur to him—or some other subject of state, more important—perhaps—than 'Lethe.' But though he will candidly say this himself, he will not easily forgive his friends, if they do not contradict him!"

Mr. Langton was a Lincolnshire gentleman, of a very elegant turn of mind, and strictly correct life. Mr. Beauclerk was a man of brilliant talents and celebrated for his powers of conversation, but of dissipated habits, and whose connexion with Lady Bolingbroke occasioned her divorce from her husband, upon which she married

Mr. Beauclerk. Johnson, however, was so captivated with the society of this gentleman, all the more agreeable to him from the accident of high birth, that he certainly was as much attached to him as to any of his friends, and felt as acutely upon his death. He occasionally went to visit Mr. Langton's family in Lincolnshire, and once was offered by them a considerable living, which he declined. But though he esteemed Mr. Langton's character, and was wont to say, "*Sit anima mea cum Langtono,*" it was plain that he enjoyed Beauclerk's society more—and an amusing scene is recorded by Mr. Boswell, of his laughing with his hearty and boisterous mirth at Langton, for refusing to join them on a wild party down the river, on the plea that he was engaged to drink tea with some young ladies.

But a much more important addition was made to his acquaintance three years after the grant of his pension. He in 1765 became intimate with Mr. Thrale, the great brewer, and the member for Southwark. He was a man of excellent sense, respectable character, great wealth, proportionable hospitality, and of a very good education; so that nothing could be more erroneous than the prevailing notion that his wife formed the only attraction of his house. She was a lively and clever person, who loved to surround herself with brilliant society, and she obtained great influence with Johnson, who was probably half in love with her unknown to himself; but he always allowed that Mr. Thrale had incomparably more both of learning and of sense, and he never ceased to feel for him the greatest respect and affection. The impression was equally groundless that Mrs. Thrale ruled in the house; the master of it was absolute whenever he wished to

make his pleasure known, and although his kindness of disposition might give the mistress a *divisum imperium* in small matters, the form of government was anything rather than a *gynocracy*. From the time of Johnson's introduction, to Mr. Thrale's decease in 1781, and even during the next two years, he might be said to be of the family; he had his apartment both in Southwark, and at their villa of Streatham; he called Thrale always "my Master," Mrs. Thrale "my Mistress:" loving the comforts of life, he here had the constant enjoyment of its luxuries: excellent society was always assembled under their roof, his moody temper was soothed, and his melancholy dispelled by those relaxations, and by having, without the cares of a family, its occupations to distract his mind; when unfortunately for his enjoyment, and on no other account that I can discover unfortunately, the widow contracted a second marriage with an Italian teacher, Mr. Piozzi, which cut Johnson to the heart, and was resented by himself and all his friends as an act of self-degradation that deservedly put Mrs. Thrale out of the pale of society. It is quite amusing to see the manner in which this step of the lady is taken both by Johnson, who had himself married his mercantile friend's widow, without any means of support but his own industry, nay, who had like Mr. Piozzi, endeavoured, but unsuccessfully, to maintain himself by teaching, and by Miss Burney, the daughter of a music-master, and sister of a Greek teacher. Had Mrs. Thrale been not only seduced, but thrown herself on the stage for subsistence, nay, on the town for a livelihood, these high-bred personages could not have mourned more tenderly over her conduct. Her fate, her fall, her sad lot, the pity of

friends and exultation of foes,* are the terms applied to the widow of a wealthy brewer, son of a common porter, because she had lowered herself to contract a second marriage with a well educated gentleman, whose circumstances led him to gain an honest subsistence by teaching the finest music in the world.†

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* "I thought," said Johnson in a letter to Sir J. Hawkins, "that either her virtue or her vice would have kept her from such a marriage; she is now become a subject for her enemies to exult over, and for her friends, if she has any left, to forget or to pity."

† Miss Burney's account of Dr. Johnson's vehement feelings on this occasion, is striking.

"Scarcely an instant, however, was the latter left alone in Bolt Court, ere she saw the justice of her long apprehensions; for while she planned speaking upon some topic that might have a chance to catch the attention of the Doctor, a sudden change from kind tranquillity to strong austerity took place in his altered countenance; and, startled and affrighted, she held her peace. A silence almost awful succeeded, though previously to Dr. Burney's absence, the gayest discourse had been reciprocated. The Doctor, then, seesawing violently in his chair, as usual when he was big with any powerful emotion whether of pleasure or of pain, seemed deeply moved; but without looking at her, or speaking, he intently fixed his eyes upon the fire: while his panic-struck visitor, filled with dismay at the storm which she saw gathering over the character and conduct of one still dear to her very heart, from the furrowed front, the laborious heaving of the ponderous chest, and the roll of the large penetrating wrathful eye of her honoured, but just then, terrific host, sat mute, motionless, and sad; tremblingly awaiting a mentally demolishing thunderbolt. Thus passed a few minutes, in which she scarcely dared breathe; while the respiration of the Doctor, on the contrary, was of asthmatic force and loudness; then, suddenly turning to her, with an air of mingled wrath and woe, he hoarsely ejaculated: 'Piozzi!' He evidently meant to say more; but the effort with which he articulated that name robbed him of any voice for amplification, and his whole frame grew tremulously convulsed. His guest, appalled, could not speak; but he soon discerned that it was grief from coincidence, not distrust from opposition of sentiment

With all his powers of conversation, and all his willingness to mix with the world, it is certain that Johnson never was received in the select circles of distinguished persons, nor indeed was at all in general society; nor can a better proof be given of the great change which a few years has effected in the social intercourse of London, and of the great contrast which at all times has been exhibited in that of Paris. Johnson was sensible enough of this, but did not repine, for he lived in a small, but highly interesting circle, and there was sufficiently es-

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that caused her taciturnity. This perception calmed him, and he then exhibited a face 'in sorrow more than anger.' His see-sawing abated of its velocity, and again fixing his looks upon the fire, he fell into pensive rumination. From time to time, nevertheless, he impressively glanced upon her his full-fraught eye, that told, had its expression been developed, whole volumes of his regret, his disappointment, his astonished indignancy: but now and then it also spoke so clearly and so kindly that he found her sight and her stay soothing to his disturbance, that she felt as if confidentially communing with him, although they exchanged not a word. At length, and with great agitation, he broke forth with' She cares for no one! You, only—You, she loves still!—but no one—and nothing else! You she still loves,'— A half smile now, though of no very gay character, softened a little the severity of his features while he tried to resume some cheerfulness in adding: 'As .... she loves her little finger!'"

Now Johnson was, perhaps unknown to himself, in love with Mrs. Thrale; but for Miss Burney's thoughtless folly there can be no excuse. And her father, a person of the very same rank and profession with Mr. Piozzi, appears to have adopted the same senseless cant, as if it were less lawful to marry an Italian musician than an English. To be sure, Miss Burney says that Mrs Thrale was lineally descended from Adam de Saltsburg, who came over with the Conqueror. But assuredly that worthy, unable to write his name, would have held Dr. Johnson himself in as much contempt as his fortunate rival, and would have regarded his alliance equally disreputable with the Italian's, could his consent have been asked.

teemed, indeed treated with unusual observance. He ascribed his neglect by the great to a wrong cause; "Lords and ladies don't like," he said, "to have their mouths stopt." The truth is, that in those days no one was, generally speaking, admitted into patrician society merely for the intrinsic merits of his writings or his talk, without having some access to it through his rank, or his political or professional eminence. Nay, even the greatest distinction in some professions could not open those doors on their massive hinges. The first physicians and the first merchants and bankers were not seen at the tables of many persons in the "west end of the town." It is equally erroneous to suppose that Johnson's rough exterior, or his uncouth and even unpleasant habits, could have prevented his fame and his conversation from being sought after to adorn aristocratic parties in later times. All these petty obstacles would have been easily got over by the vanity of having such a person to shew, and indeed by the real interest which the display of his colloquial powers would have possessed among a more refined and better educated generation. The only marvel is, that in an age which valued extrinsic qualities so exclusively, or at least regarded sterling merit as nothing without them, the extraordinary deference for rank and for high station, which Johnson on all occasions shewed, and the respect for it which he was well known really to feel, should have had so little effect in recommending him to those who regarded nothing else.

It should seem that public bodies partook in no small measure of the same indifferent feelings towards literary eminence, and regarded rather the rank, or at least the academical station, than the intrinsic merits of those upon

whom their honours should be bestowed. Johnson, having been prevented from taking a degree in the ordinary course, as we have seen, although he had resided three years at Oxford, could not obtain one when it would have given him the mastership of an endowed school; and he had attained for many years a high place in the literary world before his Alma (?) Mater would enrol him among her Masters of Arts. He obtained that honorary degree on the eve of publishing his Dictionary in 1755. No further honours were bestowed until in 1775, when a Doctor's degree was conferred upon him, Trinity College, Dublin, having given him the same, ten years before. He seems to have been much more pleased with these compliments, than chagrined at the tardy sense thus shown of his merits; for it must be admitted that Oxford delaying this mark of respect to one of her most eminent pupils so long after the Irish University, with which he had no connexion, had bestowed it, betokened a singular economy in the distribution of honours which are constantly given to every person of rank without any merit whatever, who happens to attend any of the great academical solemnities. Probably he might feel this, for it is observable that he never availed himself of the title thus bestowed upon him. He always called himself Mr. Johnson, as he had done before. He always wrote his name thus on his cards and in his notes, never calling himself Doctor. As for his books, of the three which he published after 1765, the 'Shakspeare' and the 'Tour,' have no name at all in the title-pages, and the 'Lives' have only Samuel Johnson, without either M.A. or LL.D.

In commemorating the treatment, whether of respect

or neglect, which Johnson met with, we must not forget the honour which he received from the King, (George III.,) who, hearing that he used to come and read in the fine library at Buckingham House, desired Mr. Barnard, the librarian, to give him notice of his being there, in order that he might gratify a very praiseworthy curiosity, by becoming acquainted with him. This happened in the year 1767, and the particulars of the interview, as collected by Mr. Boswell from various sources, with even more than his wonted diligence, shew the King to have conversed both very courteously and like a sensible, well-informed man upon various subjects, and to be acquainted with all the ordinary topics of conversation, both as related to books and men. Johnson's demeanour was equally correct; he was profoundly respectful, of course, but he never lowered the tone either of his opinions or of his voice during a pretty long interview.

From the time when the grant of the pension placed him in easy circumstances to the year before his death, when he had a paralytic stroke, no important event occurred in his life, if we except his journey to Scotland in 1772, which gave him an opportunity of seeing all the literary men of that country, and of observing also in the Islands a people emerging from a very low state of civility—but which had very little effect in shaking his rooted prejudice against the Scotch—and an excursion in 1775, for two months, to Paris, in company with Mr. Thrale's family, and Baretti, the author of the 'Italian Dictionary,' one of his most intimate and valued friends. Mr. Boswell has preserved one of the note books in which he kept a diary of his observations on this French tour; and though he appears to have made many and very

minute inquiries, no kind of discrimination is observable as having directed his curiosity, and very meagre general information shines through the page. His ignorance of things very generally known, is sufficiently remarkable. Thus he seems never before to have been aware that monks are not necessarily in orders; but he might also have known that though originally they were laymen, yet for many centuries they have been, as indeed their name implies, (regular clergy,) always in orders. He notes with surprise, apparently, that an iron ball swims in quicksilver. He mentions the French cookery at the best tables as unbearably bad, and accounts for their meat being so much dressed, that its bad quality (the best, he says, only fit to be sent to a gaol in England,) would make it uneatable if cooked plain.

The life which he continued to lead during these latter years was on the whole far more agreeable as well as easy than he had ever before enjoyed: for beside the entire freedom from all care for his subsistence, and the power which he thus had of indulging in the love of much, but desultory and discontinuous, reading, as well as in the society which looked up to him and humoured his somewhat capricious habits, his melancholy was considerably abated, and could be better kept under control. The family of the Thrales served to give him the quiet and soothing pleasures of a home without any of the anxieties of the domestic state, and with as much authority and more liberty than he could have enjoyed within his own household. His other friends, with whom also much of his time was passed according to the more convivial habits of that day, were among the most distinguished of the age for their talents and their accomplishments. Be-

side varying his London residence by frequent visits to the Thrales' villa, at the distance beyond which his fixed preference of London to all other abodes, would not easily let him move, he occasionally made excursions, though short ones, to more remote haunts, especially to Oxford, endeared to him both by the severely orthodox genius of the place, (severa religio loci,) by early associations, and by surviving friendships. Some efforts he continued to make in literature and in politics, in perfect freedom of labour, rather as relaxation than as work, and he made them with his wonted success. The pamphlet on the 'American Dispute' was written with great force and effect, and is the best of these pieces. It appeared in 1775. That on the 'Falkland Islands,' distinguished by the eloquent defence of peace, and the powerful description of the evils of war, was published in 1771.

In both these tracts he was avowedly the champion of the Government; but he was also employed by them, or at least acted in concert with them; for he received his materials from the Ministers, and conducted the argument by their instructions, altering whatever they deemed improper or inexpedient, and admitting his agency, by the defence he made for leaving out one notable passage, "It was their business: if an architect says, I will build finer stones, and the man who employs him says, I will have only these, the employer is to decide." His other pamphlets were, the 'False Alarm,' in 1770, on Wilkes's question, espousing the side of the Ministers, and probably in unwilling connexion with them, and the 'Patriot,' in 1772; on the general election, a short address, written to assist his friend Thrale, then a candidate for the Borough. There can be no doubt that in writing all but the last of

these works he felt himself discharging a debt of gratitude to the Government, but they certainly cannot in any respect be charged with speaking a language which was either dictated, or at all influenced, by the highly important favour he had received.

In the middle of 1783, when in his seventy-fourth year, he had the paralytic stroke, to which reference has already been made. He was seized in the night, after having felt himself the day before lighter and better than usual, as is very common in such cases, probably from the exhilarating effects of a quickened circulation. He felt a confusion and indistinctness in his head "for half a minute," and having prayed that his faculties might be preserved, he composed his supplication in Latin verse, for the purpose of trying whether or not his mind remained entire. "The lines," he says in his letter to Mrs. Thrale two days after, "were not very good, but I knew them not to be very good, and concluded myself to be unimpaired in my faculties." He found, however, that he had lost his speech, which did not return till the second day, and was for some time imperfect and unsteady. His recovery, however, from this alarming ailment appears to have been complete, though it probably increased the general weakness of the system, now beginning to shew itself in several ways, and especially by an increased difficulty of breathing, the effect of water forming in the chest. For about a year, though he continued in a precarious, and occasionally a suffering state, he yet could enjoy society much as usual in the intervals of his indisposition, and went once or twice into the country for a few days. His occupations continued the same as before, and he attended with much interest, at a

friend's near Salisbury, a course of lectures on the new discoveries in pneumatic chemistry. It was supposed that passing the next winter, 1784-5, in a better climate would have a salutary effect, and he was himself much set upon the plan of going to Italy with this view. The Chancellor (Lord Thurlow) being apprised of this design, and informed that some pecuniary assistance would be required, shewed every readiness to obtain it from the Government. In this application he was unsuccessful: but for the somewhat discreditable refusal of his colleagues his Lordship made good amends, by offering to advance "five or six hundred pounds on the mortgage of the Doctor's pension," a proposal, as he told Sir J. Reynolds, which he made from a wish that Johnson's delicacy might not be offended by the gift. Dr. Brocklesby, his physician, had likewise offered to settle a hundred a year upon him for the remainder of his life.

That life was now drawing to a close. The difficulty of breathing increased and the dropsical complaint extended itself. He suffered exceedingly, but with exemplary patience. He was attended by the affectionate care of his friends, among whom Mr. Windham was the last that ministered to his earthly comforts. He died on the 13th of December, 1784, having suffered far less from apprehension of the event than his former habit of regarding it with extreme horror, might have led us to expect.

The ample materials furnished by his biographers, and the marked and very plainly distinguishable features of Johnson's character both as an author and as a man, render the estimate of his merits and his defects, the description of his peculiarities, an easier task than often falls to

the lot of the historian. In order to attain a clear and a correct view of him in both capacities, nothing more remains after carefully considering his life and his writings, than to pierce through the clouds which have been raised by the exaggerated admiration of his followers, and the almost equal injustice of those with whose prejudices his prejudices came in conflict. And the largest deduction that can be fairly made, whether from the praise or the blame, will certainly leave a great deal to extol, and not a little to lament or to condemn.

The prevailing character of his understanding was the capacity of taking a clear view of any subject presented to it, a determination to ascertain the object of search, and a power of swiftly perceiving it. His sound sense made him pursue steadily what he saw was worth the pursuit, piercing at once the husk to reach the kernel, rejecting the dross which men's errors and defect of perspicacity, or infirmity of judgment, had spread over the ore, and rejecting it without ever being tempted by its superficial and worthless hues to regard it with any tolerance. Had he been as knowing as he was acute, had his vision been as extensive as it was clear within narrow limits, he would only have gained by this resolute determination not to be duped, and would not have been led into one kind of error by his fear of falling into another. But it must be allowed, that even in his most severe judgments he was far oftener right than wrong; and that on all ordinary questions, both of opinion and of conduct, there were few men whom it was more hopeless to attempt deceiving either by inaccurate observation, by unreflecting appeals to the authority whether of great names or great numbers, by

cherished prepossessions little examined, or by all the various forms which the cant of custom or of sentiment is wont to assume.

Out of this natural bent of his understanding arose, as naturally, the constant habit of referring all matters, whether for argument or for opinion, to the decision of plain common sense. His reasonings were short; his topics were homely; his way to the conclusion lay in a straight line, the shortest between any two points; and though he would not deviate from it so as to lose himself, he was well disposed to look on either side, that he might gather food for his contemptuous and somewhat sarcastic disposition, laughing at those whom he saw bewildered, rather than pitying their errors.

To the desire of short and easy proof and the love of accuracy when it could be obtained, and to which he sometimes sacrificed truth by striving after exact reasoning on subjects that admit not of it, we may ascribe his great fondness for common arithmetic, one of the very few sciences with which he was acquainted.

With the vices of such an understanding and such a disposition he was sufficiently imbued, as well as with its excellencies. He was very dogmatical—very confident, even presumptuous; not very tolerant. He was also apt to deal in truisms, and often inclined, when he saw through them himself, to break down an argument, sometimes overwhelming it with the might of loud assertion, sometimes cutting it short by the edge of a sneer. Seeing very clearly within somewhat narrow limits, he easily believed there was nothing beyond them to see; and, fond of reducing each argument to its simplest terms and shortest statement, he frequently applied

a kind of reasoning wholly unsuited to the subject matter, pronounced decisions of which the dispute was not susceptible, and fell into errors which more knowing inquirers and calmer disputants, without half his perspicacity or his powers of combining, would easily and surely have avoided.

The peculiarities of his style may be traced to the same source—the characteristic features of his understanding and disposition. What he perceived clearly he clearly expressed; his diction was distinct; it was never involved; it kept ideas in their separate and proper places; it did not abound in synonymes and repetition; it was manly, and it was measured, despising meretricious and trivial ornament, avoiding all slovenliness, rejecting mere surplusage, generally, though not always, very concise, often needlessly full, and almost always elaborate, the art of the workman being made manifest in the plainly artificial workmanship. A love of hard and learned words prevailed throughout; and a fondness for balanced periods was its special characteristic. But there was often great felicity in the expression, occasionally a pleasing cadence in the rhythm, generally an epigrammatic turn in the language as well as in the idea. Even where the workmanship seemed most to surpass the material, and the *word-craft* to be exercised needlessly, and the diction to run to waste, there was never any feebleness to complain of, and always something of skill and effect to admire. The charm of nature was ever wanting, but the presence of great art was undeniable. Nothing was seen of the careless aspect which the highest of artists ever give their masterpieces—the produce of elaborate but concealed pains; yet the strong hand of an able work-

man was always marked; and it was observed, too, that he disdained to hide from us the far less labour which he had much more easily bestowed.

There is no denying that some of Johnson's works, from the meagreness of the material and the regularity of the monotonous style, are exceedingly little adapted to reading. They are flimsy, and they are dull; they are pompous, and though full of undeniable, indeed self-evident truths, they are somewhat empty; they are, moreover, wrapt up in a style so disproportioned in its importance, that the perusal becomes very tiresome, and is soon given up. This character belongs more especially to the 'Rambler,' the object of such unmeasured praises among his followers, and from which he derived the title of the Great Moralist. It would not be easy to name a book more tiresome, indeed more difficult to read, or one which gives moral lessons in a more frigid tone, with less that is lively or novel in the matter, in a language more heavy and monotonous. The measured pace, the constant balance of the style, becomes quite intolerable; for there is no interesting truth there to be inculcated remote from common observation, nor is there any attack carried on against difficult positions, nor is there any satirical warfare maintained either with opinions or with persons. There is wanting, therefore, all that makes us overlook the formality and even lumbering heaviness of Johnson's style in his other works; and in this the style forms a very large proportion of the whole, as the workmanship does of filagree or lace, the lightness of which, however, is a charm that Johnson's work wholly wants. It is singular to observe how vain are all his attempts in these papers to escape from his own manner, even when it was

most unsuited to the occasion. Like Addison and Steele, he must needs give many letters from correspondents by way of variety; but these all write in the same language, how unlike soever their characters. So that anything less successful in varying the uniformity of the book, or anything less resembling the lightness, the graces, the eloquent and witty simplicity of the great masters, can hardly be imagined. Thus we not only find maiden ladies, like Tranquilla, describing themselves as "having danced the round of gaiety amidst the murmurs of envy and the gratulations of applause; attended from pleasure to pleasure by the great, the sprightly, and the vain; their regard solicited by the obsequiousness of gallantry, the gaiety of wit, and the timidity of love;" and spoilt beauties, like Victoria, "whose bosom was rubbed with a pomade, of virtue to discuss pimples and clear discolorations;" but we have Bellaria, at fifteen, and hating books, who "distinguishes the glitter of vanity from the solid merit of understanding," and describes her guardians as telling her, but telling her in vain, "that reading would fill up the vacuities of life, without the help of silly or dangerous amusements, and preserve from the snares of idleness and the inroads of temptation;" and Myrtella, at sixteen, who had "learnt all the common rules of decent behaviour and standing maxims of domestic prudence," till Flavia came down to the village, "at once easy and officious, attentive and unembarrassed," when a struggle commenced with the old aunt, who found "girls grown too wise and too stubborn to be commanded, but was resolved to try who should govern, and would thwart her mere humour till she broke her spirit."

Ponderous as such levities are after the 'Spectator'

and the 'Tatler,' and heavy indeed as the whole of the 'Rambler' proves to every reader, it is impossible to deny that it contains a great profusion of sensible reflection, or to refuse it the praise of having been produced with a facility altogether astonishing, considering it to bear so manifestly the mark of great labour. The papers were always written in the utmost haste; a part of each being sent to the press, and the rest written while it was printing. Nor did the author almost ever read over what he had written until he saw it in print. We have seen that the 'Idler' was composed in the same hurry. Indeed, Johnson appears to have composed so easily, that he could write as fast as he could copy. That he composed with the greatest ease is, however, certain. He told Miss Burney that the 'Lives of the Poets,' which he never considered lives, but only critical prefaces, were printed without his ever reading the manuscript, and that he reserved his corrections till he saw the sheets in print. Accordingly, when he complied with her request to have the proof sheets of a life, and she chose that of 'Pope,' she found the margin covered with alterations. He wrote forty-eight printed pages of his 'Life of Savage' in one night, and Mr. Boswell relates that he wrote twice as much of a translation at one sitting; but here there must be some mistake; as no man who wrote Johnson's hand could have written nearly so much. Even his verses were made so easily, that he wrote seventy of his 'Vanity of Human Wishes' in one day, and a hundred in another. These things are believed from the testimony of his friends, and only upon that authority. All internal evidence is clearly against his composition being easy any more than it was natural.

The pamphlets and other occasional tracts of this eminent writer are of a far higher merit than his 'Moral Essays;' and they are so much the more excellent, because they are occasional. The subject is either the attack or the defence, sometimes both combined, of some opinions, some measures, some men. The singularly polemical powers of the author's mind—his controversial propensities—his talent for pointed writing and for declamation, relieved by epigram—his power of sarcasm, and disposition to indulge in it—his plain, common sense way of viewing every subject—and his short, downright, fearless way of handling it, fitted him for such contests beyond almost any one who ever engaged in them; and he had the advantage of writing at a time when the conduct of both political and literary warfare was in the hands of men little capable of able or even of correct writing, and when, except the writings of Junius, and of Burke, and perhaps of Wilkes, nothing had appeared which preferred even a moderate claim to the approval of well informed readers. The American pamphlet, 'Taxation no Tyranny,' and the review of Soame Jenyns' treatise 'On the Origin of Evil,' were soon distinguished as the productions of a very superior pen to any before known, at least to any known since the Addisons, the Swifts, and the Steeles took a part in the labours of the ephemeral press. Nor are there any of the Craftsmen and the Examiners equal, upon the whole, in merit to the pamphlets of Johnson, taking all the qualities required in such works into the account, though, doubtless, the exquisite wit of both Addison and Swift has a lightness and a flavour which we in vain look for in the works of their more stately successor; while, as for the

merciless execution of Soame Jenyns, the art of periodical criticism being only of late cultivated, nothing can be found to match it at the beginning of the century, if it be not some of the unmeasured attacks of the Scriblerus school upon their humble adversaries.

We are thus naturally led to speak of Johnson's political principles. They were uniformly and steadily those of a high tory in Church and State. He was of a Jacobite family, and he never laid aside his good wishes towards the Stuart family; but when the madness of 1745, and the subsequent carelessness, ingratitude, and sottish life of the Pretender had extinguished all hopes among his followers, the strong opinions in favour of prerogative, the hatred of the Whig party, and his distrust, indeed dislike, of all popular courses, remained as abiding parts of Johnson's faith and of his feelings on political subjects. But his Jacobite opinions also remained as regarded the history of the past both in regard to persons and things. He had the greatest admiration and even esteem for Charles II., whose licentious life he was forced to allow; but he declared him to be the best king, excepting James II., that had appeared between the Restoration and the accession of George III. William III. he could not endure, and openly called him "one of the most worthless scoundrels that ever existed," (Bos., II. 353.) He, of course, had in his eye the family connexion of that illustrious prince with James. There was no abuse he did not lavish on George II., and in his father he could only find one virtue, that he wished to restore the exiled family, whose merits in Johnson's eyes were plainly the origin of all these violent and absurd opinions. In other respects, however, he was no enemy

of liberty, but he wished to see it enjoyed under the patronage of the sovereign and of a parliament representing hereditarily and electively the rank and property of the country. He was no stickler for abuses, but he desired that they might be prudently and cautiously reformed by the wiser and the more respectable portion of the community, not lopped off rashly by the violent hands of the multitude.

Yet he so greatly loved established things, so deeply venerated whatever had the sanction of time, that he both shut his eyes to many defects in his view consecrated by age, and unreasonably transferred to mere duration the respect which reason itself freely allows to whatever has the testimony of experience in its favour. The established Church, the established Government, the established order of things in general, found in him an unflinching supporter, because a sincere and warm admirer; and giving his confidence entirely, he either was content to suspend his reason in the great majority of instances, or, at least, to use it only for the purpose of attaining the conclusion in favour of existing institutions, and excluding all farther argument touching their foundations. The manner in which these feelings rather than principles broke out, even on trifles, was often sufficiently ludicrous. When he went to Plymouth, where he found a new town grown up, he always regarded the "Dockers" (so they were called) as upstarts and aliens, siding zealously in the local disputes with the old established town. He once exclaimed, "I hate a Docker;" and again, half laughing at his own half-pretended zeal, when there was a question of watering the new town, "No, no!" said he, "I am against the Dockers: I am

a Plymouth man. Rogues! let them die of thirst; they sha'n't have a drop!" This was more than half jest; but no doubt can be entertained that his dislike of the American cause, and his exertions for the mother country, had their root in the same soil of rank prejudice—a prejudice against the new people as much as an opinion against their claims. "I am willing," he once said, "to love all mankind except an American;" and, he roared out with much abuse, "he'd burn and destroy them."—(Boswell, III. 314.) "Sir," said he on another occasion, "they are a race of convicts, and ought to be thankful for anything we allow them short of hanging."—(III. 327.)

Akin to this were his strong and even intolerant national prejudices. Of the French he ever spoke with an unmeasured and an ignorant contempt. He could not but allow that there were many successful cultivators of letters in France: indeed, he admitted that there "was a great deal of learning there," and ascribed it to the number of religious establishments; but he maintained that the men generally knew no more than the women: that their books were superficial; that their manners were bad; that they are a "gross, ill-bred, untaught people;" nay, that their cookery is unbearable, and their meat so vile as to be only fit for sending to feed prisoners. But his prejudices were to the full as strong against the Scotch; towards whom no reflection, no civility experienced in their hospitable country, no intercourse with the most distinguished and most deserving individuals, could ever reconcile him. With this, and with most of his other prejudices, a strong taint of religious as well as political bigotry mixed

itself. The Presbyterian form of polity he could not bear; it was of too republican a caste, and it wholly rejected the "regimen of Prelates."

If his political opinions were strong, his religious ones were stronger still; and after wavering, even disbelieving, at one time, and for some years "caring for none of these things," he became one of the most sincerely believing, and truly pious Christians that ever professed the faith of the Gospel. That he had very minutely, or very learnedly, examined the various points of controversy connected with this most important subject cannot be affirmed, nor even that he had with adequate patience, and with undisturbed calmness, scrutinized the foundations of his own general belief. His extreme anxiety to believe; his nervous dread of finding any cause for doubt; his constitutional want of some prospect on which to fix his hopes; his excessive alarm at the appearance of any cloud arising over that prospect, prevented him from possessing his soul in the perfect peace and unruffled serenity necessary for him who would rise to the height of this great argument, nay indisposed him altogether to enter upon the discussion. He regarded all who contended, however conscientiously, and however decorously, against the truths of Revelation, as not only enemies, but criminals. He never could bear the presence of any such persons as were known to hold infidel opinions. He openly avowed his abhorrence of them, and not only proclaimed his belief of their guilt in harbouring such sentiments, but of their also being generally men of wicked lives. Thus, when a zealous but thoughtless person had once said, that the character of an infidel was more detestable than that of a man notoriously

guilty of an atrocious crime, and some one ventured to deny this strange assertion, Johnson immediately said, "Sir, I agree with him: for the infidel would be guilty of any crime if he were inclined to it."—(Boswell, III. 52.)

His impatience of hearing any one commended whose orthodoxy was suspected is well known; but when a person of known heterodox opinions was in question, he broke through all bounds, and once being at Oxford, in a company into which Dr. Price came, he instantly got up and left the room. Dr. Price was at that time only known by his unitarian writings, and had published nothing on politics, except his calculations touching reversionary payments may be so considered. When some years later he attended a course of chemical lectures, in which of necessity Dr. Priestley's name was frequently mentioned as a great discoverer, he knit his brows, and said with a stern voice: "Why do we hear so much of Dr. Priestley?" It was necessary to pacify him by stating, what, however, the lecturer must have before said, that the discoveries were Dr. Priestley's. (Bos., IV. 251.)

His abhorrence of David Hume is well known, and his grossly insulting Adam Smith, because he had in a private letter, which was afterwards published without his consent, described the death of the philosopher as calm and cheerful, and his life as virtuous, has been often mentioned. He is said to have given him the lie at Glasgow, in a company of literary men assembled for the purpose of showing civility to the renowned English traveller; but this anecdote cannot possibly be true.* It is certain,

* It is related on the authority of Sir Walter Scott, a professed dealer in curious stories, and not very nice in scrutinizing his authorities. Johnson's visit to Scotland was in 1773; Hume died in 1776.

however, that, while he would not suffer Hume or Smith to be introduced, he endured the intimate and familiar society of some men very well known to have no great reverence for religion or belief in its doctrines, but whose rank and manners pleased him—and as for morality, with all his high-sounding talk about its obligations in general, he both associated with persons whose lives were notoriously profligate, and maintained opinions of a somewhat loose nature upon some particular heads; such as underrating conjugal fidelity on the husband's part.

His alarm about the foundations of his belief, seemed always to betoken some little misgivings—some indication that he was most anxious to believe, and would fain have a firmer faith than he had. When in a fit of gloom among his Oxford friends, he was reminded, by way of comforting him, that surely he had light and proof enough, he said shortly and significantly, "I wish to have more." His ever hankering after "more" was betrayed by his strong disposition to believe in spirits, ghosts, apparitions. He never would suffer the possibility of these to be rejected, or the belief in them to be treated with the least contempt; and though on such a subject he could not be so dogmatical as was his wont upon other points of faith, he yet always stood out most dogmatically for the credit of human testimony; strenuously contending for it wherever gross improbability did not counteract its effect—nay, even willing to set it against no slight defect of probability in the circumstances. It was plain that this bias connected itself in his mind with the evidences of Revelation; for the general turn of his mind was to regard reasonable probability, and to be somewhat over-

bearing in rejecting positions, either contrary to general principle, or inconsistent with plain reason, or in any other way unlikely to be true.

It is equally certain that his deference to authority was confined to questions of religion and policy. Upon all other subjects he was an independent thinker; upon those he was ever a stickler for authority or a willing slave, but he was desirous of having some deciding power, some competent jurisdiction, which upon religious points should preclude all doubt, and in obedience to which he might repose undisturbed. He was willing to support the powers that be on temporal points, that he might maintain discipline in society and preclude both the doctrines and the exertions of those who are given to change. No man ever held these opinions or showed these feelings with greater consistency.

Nevertheless there were occasions on which the masculine strength of his understanding broke through the fetters which his fears, or his temporal, or his political habits of thinking had forged for it. Thus he always was an enemy of Negro Slavery, and once at Oxford, in a company of grave doctors, gave as a toast, "The insurrection of the negroes in the West Indies*, and success to them." In speaking of intolerable abuses, even by the Supreme Legislative power, he held the right of resistance; for in no other sense can such expressions as these be taken. "If the abuse be enormous, nature will rise up, and claiming her original rights, overturn a corrupt

* Of his biographer's many absurdities, it is none of the least that when entering his protest against Johnson's anti-slavery opinion, he seriously declares, that the abolishing the slave traffic would be "to shut the gates of mercy on mankind." (III., 222.)

political system." The misgovernment of Ireland he equally felt with the Colonial Slave system itself. "Let the authority of the English Government perish," he exclaimed, "rather than be maintained by iniquity. Better to hang and draw people at once, than by unrelenting persecution to beggar and starve them, and grind them to powder by disabilities and incapacities." (Boswell, II., 120.) This was said in 1770, eight years before the first relaxation of the penal code; but in the 'Rambler' and the 'Idler' is to be found as clear and as powerful a statement of the whole argument against capital punishment, and also against imprisonment for debt, as can anywhere be met with, and those papers were published as early as 1752.*

The occasional writings of which we have been speaking, and the mention of which introduced these particulars regarding his opinions, were by far his best works, until very late in life he wrote his 'Lives of the Poets,' the production on which his fame as an author chiefly rests. But in his earlier years there were, beside the celebrated pamphlets and other controversial pieces of which alone I have treated, a great number of more obscure performances which he contributed chiefly to periodical works; and many of these have very considerable merit, nor are they generally speaking written in the wordy and solemn style which he seems to have used indeed quite naturally, but rather to have reserved for higher occasions. The most considerable of these writings are his 'Life of Sir Francis Drake,' a long, unaffected, and minute narrative; but in which he,

* See particularly 'Rambler,' No. cxiv.; 'Idler,' Nos. xxii. xxxviii.

strangely enough, neither tells us when that great man was born, nor how old he was when he died; and his 'Memoirs of Frederick II. of Prussia,' written in 1756, which but for a few passages (as where he speaks of the old king's grenadiers being chosen to "propagate procreating," and of "providing heirs for their habiliments,") might be read by any one, without ever suspecting who was the author. It was his rare lot as a reviewer, to write a criticism upon a work of Sir Isaac Newton; his 'Five Letters to Bentley,' having been published while Johnson contributed to the 'Gentleman's Magazine.' It is certain that he treated this most venerable of all the sons of men, respecting whom he was wont to say, that had he lived in heathen times, he would have been worshipped as a god, in no very different way from any other author, whose writings chanced to come before him in his critical capacity. Beside the passage which follows, the review consists of five short paragraphs, and one is in these words, coming after a quotation.

"Let it not be thought irreverence to this great name, if I observe, that by matter evenly spread through infinite space, he now finds it necessary to mean matter not evenly spread; matter not evenly spread will indeed commence, but it will commence as soon as it exists; and in my opinion this puzzling question about matter, is only how that could be that never could have been, or what a man thinks on when he thinks of nothing."—Of which petulance it is enough to remark, as might well be supposed, that Newton being entirely right, his reviewer is wholly wrong.

Of the Prefaces to his own or other men's works, it is not necessary to speak in detail. The most ambitious is

that to the Dictionary, which is powerfully written: but promises more than it performs, when it professes to give a history of the English language; for it does very little more than give a series of passages from the writings in the Anglo-Saxon and English tongues of different ages. The Dictionary itself, with all its faults, still keeps its ground, and has had no successor that could supplant it. This is owing to the admirable plan of giving passages from the writers cited as authorities for each word, and this part of the design is very well executed. Hence the book becomes almost as entertaining to read, as useful to consult. The more difficult task of definition has been less happily performed; but far better than the etymological part, which neither shows profound knowledge, nor makes a successful application of it. The compiler appears to have satisfied himself with one or two authorities, and neither to have chosen them well, nor consulted them with discrimination. Of any attempts at a deeper and more philosophical study, either as regards the structure or the grammar of our language, he cannot be said ever to have had the merit; but if he at any time was so far fortunate, Horne Tooke has very mercilessly stript him of it.

The Preface to his Shakespeare certainly is far superior to his other introductory discourses, both fuller of matter and more elaborate. His remarks on the great dramatist are generally speaking sound and judicious; many of them may even, on a subject sufficiently hackneyed, be deemed original. The boldness with which his many critical objections were offered, deserves not the less praise that Shakespeare's numberless and gross faults are easy to discern; because, in presence of the multitude, one might

say, even of the English nation at large, their obvious nature and considerable magnitude has never made them very safe to dwell upon. Nor was it a moderate courage that could make Johnson venture upon the plain statement of a truth, however manifest, yet very unpalatable, that "not one play, if it were now exhibited as the work of a contemporary writer, would be heard to the conclusion." The Preface is more to be commended than the work itself. As a commentator, he is certainly far from successful.

The tour in Scotland produced, in 1775, his 'Journey to the Western Islands,' certainly one of his least valuable writings. The strong prejudices against the Scotch under which he laboured, and which he may be said to have cherished, partly from perverseness, partly in a kind of half jest, certainly do not break out as might have been expected; and nothing can be more unfair than the attacks made upon him by the zeal of national feeling as if he unjustly described a country in which he had been hospitably received. This charge is so plainly without foundation, nay, so kindly does he express himself, so respectfully, so gratefully of all with whom he came in contact, and so just is he almost always to the merits both of the country and its inhabitants, that no one can hesitate to what cause he shall ascribe the violence of the animosity excited by his book. Had he only believed in 'Ossian's Poems,' nothing would ever have been heard but satisfaction with the 'Journey' and respect for its author. His opinion was strong, his arguments were powerful: he plainly gave the right name to an attempt at deceiving, which had failed with him: it was highly offensive to those concerned in the fabrication,

and it was somewhat disrespectful to their dupes: his unqualified opinion remained unrefuted; his arguments are to this day unanswered, and the believers found it more easy to rail at him than to refute. But though the work cannot be charged with unfairness or even with prejudice, it must be admitted to be superficial and even flimsy. Less entertaining than most books of travels, it is solemn about trifles, and stately without excuse, so as not rarely to provoke a smile, at the disproportion between the sound and the sense. He has himself in the concluding sentence of the book, very fairly stated the reason why his remarks must needs have little value, his inquiries be imperfect, and his wonder often misplaced; only that his want of information, which he confines to national manners, is pretty generally apparent on all the subjects he touches upon. "Novelty and ignorance must always be reciprocal, and I cannot but be conscious that my thoughts on national manners are the thoughts of one who has seen but little."

We have now considered all his prose writings, except the 'Lives of the Poets' his greatest and best. The design of publishing a good and full edition of the English Poets, had been formed by the booksellers in the year 1777, and they asked him to give a short life and criticism, by way of preface, to each. They were to choose the poets, and he was to write upon each one thus selected. He at once agreed, and being desired to name his price, very modestly fixed on 200*l.*; but they gave him 300*l.* He was afterwards allowed to recommend the insertion of a few other lives: and it seems well to have justified their being themselves the selectors, that the four whom he added were Blackmore, Watts, Pom-

frett, and Yalden, the worst in the collection, and of whose works none ought to have been inserted, except Pomfrett's 'Choice,' and perhaps a few passages of Blackmore's 'Creation,' though nothing can be more exaggerated than Johnson's praise of that poem, as "transmitting him to posterity among the first favourites of the English Muse."* The omission of Goldsmith in this collection is wholly beyond one's comprehension; whether we regard the interests of the booksellers, or the taste and the friendship of the biographer who had caused the insertion of Blackmore and Yalden. These prefaces, excepting that of Savage, the criticism on Pope's 'Epitaphs,' and one or two similar pieces, were all written towards the end of his life: the first half being published when he was seventy, and the remainder when he was seventy-two years of age.

The merit of this work is very great, whether we regard the matter or the style—for the composition is far more easy and natural, far less pompous and stately, and the diction both more picturesque and more simple than in any other of his writings. The measured period, the balance of sentences, and the diffuseness arising from this desire of symmetry, is still in a good degree retained; but it is far less constant, and therefore palls less on the appetite than in any of his former works.

The narrative has no great merit, either in respect of the composition, or in the fulness of its details: conse-

* It must be admitted, indeed, that Addison ('Spectator,' No. 339,) had described this poem as "executed with great mastery," and as "one of the noblest productions of English verse," but he plainly was seduced by what he also mentions, its excellent intention, and its usefulness in a religious view.

quently as a work of biography it has not any great claim to our admiration. But some of the anecdotes are well and shortly related, and some of the characters strikingly and skilfully drawn, with a sufficiently felicitous selection of particulars and a remarkable force of diction. There are not wanting declamatory passages of considerable power, but these are very inferior to the more quiet, and graphic portions, and through the whole work there prevails a tone of piety and virtue which shows the love of these excellencies to have been deeply rooted in the writer's mind, and to have always guided his feelings. There is, too, an amiable desire shown to give merit its reward; nor do the author's prejudices interfere with this just course, except in a very few instances, of political feelings warping his judgment, or indignation at impiety blinding him to literary excellence, or of admiration for religious purity giving slender merits an exaggerated value in his eyes. The justness of his taste may be in all other cases admitted; great critical acuteness is everywhere exercised; extensive reading of ancient and modern poetry is shown; and occasionally philosophical subjects are handled with considerable happiness both of thought and of illustration.

The general opinion has always held up Savage's life as the master-piece of this work, but certainly under the impression made by strong invective, powerful, though somewhat turgid declamation. There is beyond comparison, more, both of historical genius, and of critical acumen in the Lives of Dryden, of Cowley, and of Pope.

His 'Dryden' is distinguished by judicious and fair criticism, both on the inimitable poems and as inimitable prose of that great writer. Nothing especially can be

finer or more correct than the estimate of his prose style, and the concluding summary of his general merits as a poet particularly, is not only full, but composed with a simplicity and elegance which we shall in vain seek in Johnson's earlier writings. "Perhaps no nation ever produced a writer that united his language with such a variety of models. To him we owe the improvement, perhaps the completion of our metre, the refinement of our language, and much of the correctness of our sentiments. By him we were taught *sapere et fari*, to think naturally and express forcibly. He taught us that it was possible to reason in rhyme. He showed us the true bounds of a translator's liberty. What was said of Rome, adorned by Augustus, may be applied by an easy metaphor to English poetry, embellished by Dryden; *Lateritiam invenit, marmoream reliquit;* he found it brick and he left it marble."

The 'Cowley' was by Johnson preferred to all his other lives, owing probably to the masterly dissertation upon the metaphysical poets, a name which appears to have been very inaccurately chosen, as their writings have nothing of metaphysics but its occasional obscurity, and are rather distinguished by pedantic display of misplaced learning, and constant striving after wit, equally unseasonable and far-fetched. Johnson's 'Essay' is, however, admirable in every particular: full of sound remarks, eloquently composed, sparkling with wit, rich in illustration, and, above all, amply attaining its object, by giving a description of the thing, the subject-matter, at once faithful and striking. It must certainly be placed at the head of all his writings. The criticisms on Cowley's various poems are equally to be admired. Nothing can be more discriminating, more

learned, more judicious. Nor can we, when hurried on by admiration of so much excellence and such just remarks, pause upon the strange error with which the life of a metaphysical poet sets out, in defining genius to be the "mind's propensity to some certain science or employment," as if the will and the power were one and the same thing.

In speculative or argumentative writing, the life of Pope is not equal to that of Cowley; yet while its critical merits are fully equal, it excels that and all Johnson's other works, in the skilful narrative and happy selection of particulars to describe personal character and habits. His admiration of Pope's poetry, its fine sense, its sustained propriety of diction, its unbroken smoothness of versification, was great; it was natural to the similarity of his own tastes. Nor was he ever patient of the affectation or the paradox which denied Pope to be a poet. But he appears to have had very little respect for his person, and he has painted him in a manner to lower him almost without any relief. It would be difficult to fancy a greater assemblage of small matters calculated to make their subject look paltry, than we find in the eight or nine pages devoted to a description of him,—as his being "protuberant behind and before;" "comparing himself to a spider;" "being so low of stature, that he must be brought to a level with the table by raising his seat;" "being dressed by the maid, and with difficulty kept clean."—"Sometimes he used to dine with Lord Oxford privately, in a velvet cap. His dress of ceremony was black, with a tie wig and a little sword. When he wanted to sleep, he nodded in company, and once slumbered at his own table, while the Prince of Wales was talking of poetry."

Of his other Lives some, as that of Savage, have been praised too much; some, as that of Milton, too severely censured. It cannot be denied that the former is written with a rare power of invention, though somewhat swollen and monotonous; but its partiality to the subject, which both blinds the author to his friend's defects, and fills him with a very exaggerated idea of his poetical merits, forms the principal defect. That he had strong prepossessions against Milton's political opinions, cannot be doubted; but it is extremely incorrect to affirm, as has too generally been affirmed, that this feeling made him unfair to that great poet's merits. No one can read his criticism on 'Paradise Lost' without perceiving that he places it next to the Iliad, and in some respects on an equal, if not a higher level. His praise of it in the 'Rambler' is equally ample. His objections are not at all groundless: and although to the lesser pieces he may not be equally just, it is certain that except to the 'Lycidas' he shews no very marked unfairness, while, in observing the faults of the others, he largely commemorates their beauties. The 'Life of Swift,' which, as a piece of biography, stands high in the collection, is disfigured by more prejudice than any other. The merits of that great writer's poetry are almost entirely overlooked, and his prose works, especially the 'Gulliver,' are undervalued in a degree which, when we recollect Johnson's own talent for sarcasm, and his proneness to see in a ludicrous light the objects of his scorn or his aversion, would seem incomprehensible, or only to be explained by the supposition that his religious feelings were roused against one whom he regarded as having, like Sterne, an object of his special scorn, disgraced by his writings his sacred

profession. The prejudice which he entertained against Gray, on the other hand, was entirely confined to his poetry, which he on all occasions undervalued even much more than he has ventured to do in the 'Life' of that poet. He was used to call him dull in every sense, both as a writer and in society.

Though generally just in his criticisms, yet he would sometimes in conversation give his opinion with great exaggeration, especially when his personal likings or dislikings were at issue: of this a memorable example is given by Mr. Boswell. On Goldsmith's merits being the subject of conversation, he dogmatically set him as an historian above all those of this country, naming Robertson in particular, and admitting that he had never read Hume.

It is not, however, only in works of judgment as his criticisms, or of narrative as his lives, or of dissertation and argument, as his moral and controversial writings, that Johnson attained great eminence. In works of imagination he is to be reckoned a very considerable artist, and to be ranked clearly among the English classics. The 'Rasselas' might not, of itself, have sufficed to support this character, for it is cold in the colouring, and shows little play of fancy, belonging to the class of philosophical romances, the least fitted to excite a lively interest, or to command continued attention unless when enlivened by either great powers of wit, or recommended by extraordinary beauty of composition, or ministering to the love of novelty by strange opinions. While the book which, in some respects, it most resembles, the great master-piece of Voltaire, is not easily laid down by him that takes it up for the hundredth time, the reader

who first attempts the 'Abyssinian Candide' feels that he has imposed on himself a task rather than found a pleasure or even a relaxation. The manner is heavy, and little suited to the occasion; the matter is of a very ordinary fabric, if it is safe and wholesome; there is nothing that shines except the author's facility of writing in a very artificial style, as soon as we are informed, by external evidence, of the whole having been written in a few nights. He, perhaps, had some kind of misgiving that it was not a successful effort, for he had never looked at it till two and twenty years after it was written, when a friend happening to have it who was travelling with him, Johnson read it with some eagerness.

But his Poetry belongs to a different rank. That his Tragedy was a great failure on the stage has been already related; that it is of extreme dulness, of a monotony altogether insufferable, and therefore tires out the reader's patience quite as much as it did the auditors, is true; that most of his lesser pieces are only things of easy and of fairly successful execution is likewise certain, with perhaps the exception of his verses on Robert Levett's death, which have a sweetness and a tenderness seldom found in any of his compositions. But had he never written anything after the 'Imitations of Juvenal,' his name would have gone down to posterity as a poet of great excellence—one who only did not reach equal celebrity with Pope, because he came after him, and did not assiduously court the muse.

In truth, these two pieces are admirable, both for their matter, their diction, and their versification. In closeness of imitation, indeed, they have a moderate degree

of merit, the original verse doing no more than furnishing a peg whereon to hang the imitation, and often not even that, and a line and a half of Latin being in one place the only excuse for sixteen of English. But if we leave on one side the Latin altogether, the poems are truly excellent. They abound in sterling sense, happily clothed in a language full of point, illustrated by as happy a selection as possible of examples, though figures are very sparingly introduced; and the ear is as well filled with the harmony of the correct and smooth verse as the mind is with the rich, strong, and appropriate diction. There is little metaphor introduced; the fancy of the bard is not much drawn upon; his feelings are not at work to affect those of his readers; he is operating with the head and upon the understanding; he is now and then indignant, often contemptuous, once or twice only pathetic; but for eloquence in harmonious verse, for intellectual vigour tuned to numbers, it would be difficult to name any higher feats in any tongue. Many of the remarks already made on the moral and descriptive poetry of Voltaire* have their application to these great performances; and it is no small praise of any work of genius that it may boast some similarity with what must be admitted to bear away the palm from Voltaire's other serious poems.

The most splendid and the most renowned passage in these pieces is the Charles XII.; finer by a good deal than the Hannibal of Juvenal, of which it much rather fills the place than betrays the imitation. The Charles is certainly finer than the Hannibal in all but one

* Vol. i.

point. There is nothing in Johnson to be compared with the proud, insulting scorn of

> I demens curre per Alpes,
> Ut pueris placeas, et declamatio fias,

not lowered in the tone by Dryden's exquisite and literal verse,

> Go, climb the rugged Alps, ambitious fool,
> To please the boys, and be a theme at school!

The Xerxes, too, of Juvenal is finer than the Xerxes of Johnson, who has, however, added his Bold Bavarian, one of the best passages of the kind in his poems.

Were I to name the lines that please me most in these two pieces I should venture to give those in which there are both an unusual mixture of pathos and a happy play of imagination, as rare in Johnson's verse—I mean the lines on Human Life.

> "Now Sorrow rises as the day returns,
> A sister sickens, or a daughter mourns.
> Now kindred merit fills the sable bier,
> Now lacerated friendship claims a tear;
> Year chases year, decay pursues decay,
> Still drops some joy from withering life away.
> New forms arise and different views engage,
> Superfluous lags the veteran on the stage,
> Till pitying nature signs the last release,
> And bids afflicted worth retire to peace."

Nothing, with perhaps the exception of the last couplet but one, can be finer: and the couplet immediately preceding that more doubtful one is most admirable, giving an image at once lively, beautiful, and appropriate. It is recorded of Johnson that he often would repeat, with much emotion, those lines of the Georgics, in a similar vein, and which probably he had in his mind when he composed this beautiful passage.

Assuredly, we may in vain search all the Mantuan tracery of sweets for any to excel them in the beauty of numbers, or in the tenderness of the sentiment, provided we abstract them from the subject to which they are applied.

"Optima quæque dies miseris mortalibus ævi
Prima fugit; subeunt morbi tristisque senectus;
Et labor, et duræ rapit inclementia mortis."*

As far as close imitation goes, that is, translation, in these finer poems, they fall immeasurably below the noble verses of Dryden.

Thus the Xerxes of the latter is far finer than Johnson's, who never would have dared to make such a translation as Dryden's of

"Altos
Deperisse omnes, epotaque flumina Medo
Prandente."

"Rivers, whose depth no sharp beholder sees,
Drink up an army's dinner to the lees."

Hardly would have ventured on this,

"Et madidis cantat quæ Sostratus alis."

"With a long legend of romantic things
Which in his cups the boozy poet sings."

In the concluding passage of the Satire the two artists approach each other, and the original, more nearly: but Dryden is considerably above Johnson.

"Fortem posce animum et mortis timore carentem,
Qui spatium vitæ extremum inter numera ponit
Naturæ."

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* "Swift fly the joys to anxious mortals known,
Swiftest the sweetest, ere yet tasted, gone!
Disease, and toil, and age fill up our day,
And death relentless hurries us away."

is given much better, with more spirit, and very closely by

> "A soul that can securely death defy
> And count it Nature's privilege to die;"

than by

> "For faith, that panting for a happier seat,
> Counts death kind Nature's signal of retreat."

And Dryden has nothing which corresponds to the unintelligible verse,

> "For Nature sovereign o'er transmuted ill."

The art of translation, in which Johnson's love of accuracy qualified him to excel, as well as his facility of pointed composition, was possessed in a much higher degree by Dryden than either by Johnson or indeed by any one else. That he was unequal in his versions, as in all his works, is certain; and his having failed to render in perfection the diction of Virgil, which can hardly be approached in any modern tongue but the Italian, is no reason for overlooking his extraordinary genius displayed in this most difficult line. I have always read with pain the remarks on Dryden's translations, or rather on his 'Virgil,' in Mr. Campbell's 'Essay on English Poetry;' and the rather that, when estimating Dryden's power as a translator, he scarcely mentions his 'Juvenal,' and says nothing at all of his 'Ovid' and 'Lucretius;' these, with 'Juvenal,' being past all doubt among his greatest works. But, indeed, he consigns to equal silence the immortal Ode, which, with the exception of some passages in Milton, is certainly the first poem in our language.* Had Mr. Campbell expressed himself coldly

* I had often found in my deceased friend a disposition to undervalue that great ode. At length it broke out, the last time I saw

of such translations, such metrical doers into crabbed and unpoetical English, as have of late been praised, merely because readers, ignorant of Italian, wish to read Dante without the help of a dictionary, he might have more easily been forgiven. Towards Dryden he is wholly unjust.* Nor had he apparently a due value for the poetry of Johnson. He includes the 'Vanity of Human Wishes' among the specimens, but he never mentions Johnson at all among the poets whom he commemorates. Bestowing so disproportioned a space upon Goldsmith renders it plain that he undervalued Johnson. For though Goldsmith is superior to him, they are too near in merit, and come from schools too much alike to authorize him who sets the one so high, to neglect or undervalue the other.

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him, just before he went to Boulogne, where he died. He expressed himself with extreme bitterness of attack on the bad taste of the world, for admiring it so highly; no one could doubt that his jealousy was personally irritated; a feeling wholly unworthy of one who had written his admirable songs.—I trust that nothing in the text may be supposed to have been written with any disrespect towards Mr. Campbell's Essay, which is a work in every way worthy of its author. Many of the critical observations have the peculiar delicacy which might be expected from so eminent a poet. Many parts of it are written with much felicity of diction. Some passages shew all the imagination of a truly poetical genius. The description for instance, of a launch, is fine poetry in all but the rhythm.

* It is remarkable that Mr. Campbell, in selecting proofs from Pope, (whom he most justly defends from all the puny attacks of taste vitiated by theory, and judgment perverted by paradox,) should, to shew his power of picturesque description, have omitted the finest example of all, the Italy in his 'Dunciad:'

> "To happy convents, buried deep in vines,
> Where slumber abbots purple as their wines, &c."

Of Johnson's Latin verses it remains to speak, and they assuredly do not rise to the level of his English, nor indeed above mediocrity. The translation of Pope's 'Messiah,' however, a work of his boyhood, gave a promise not fulfilled in his riper years. His not unfrequent efforts in this line are neither distinguished by the value of the matter nor the felicity of the diction; nor is he always correct in his quantity. Such offences as 'Litterā Skaiæ,' for an Adonian in his Sapphics to 'Thralia dulcis,' would have called down his severe censure on any luckless wight of Paris, or of Edinburgh, who should peradventure have perpetrated them; nor would his being the countryman of Polignac, or of by far the finest of modern Latinists, Buchanan, have operated except as an aggravation of the fault*.

It remains to consider Johnson's personal character and habits. Nor can we here avoid, first of all, attending to the rank which he held among those who either cultivate conversation as an art, or indulge in it as a relaxation, both pleasing and useful, from severer occupations. That there have been others who shone more in society both as instructive and as amusing companions, is certain. Swift's range was confined, but within its limits he must have been very great. Addison, with an extremely small circle, has left a great reputation in this kind. Steele was probably more various and more lively, though less delightful. But Bolingbroke's superiority to all others cannot be doubted; and nearer our times Burke could hardly be surpassed, though his refinement

* *Variabilis* was always objected to by Parr, and it is not of pure Latinity, though to be found, I believe, in Apuleius, a mean authority.

was little to be extolled; while in our own day Windham, with almost all that his friend possessed, had an exquisite polish, to which none that have been named but Bolingbroke could make any pretension. Yet, whether because all these, except Steele, had important public stations to fill, or because they did not so much make society the business of their lives, or because their very excellence in conversation prevented them from being mannerists, or finally, because no one, except in Swift's case, thought of giving their names the termination in *ana;* certain it is, that they do not fill any thing like the same space with Johnson in this particular. He lent himself, too, very readily, and, indeed, naturally to occupying this foreground; for he delighted in dogmatical sentences easily carried away; he spoke in an epigram style that first seized on men's attention and then fixed itself in their memory; he loved polemical discussion, and was well fitted for it by his readiness, by the flow of both his sayings and his point, and by the plain and strong sarcasm which he had ever ready at a call. His talk, indeed, was akin to his writings, for he wrote off-hand, and just as easily as he spoke. He loved to fill a chair, surrounded with a circle well known to him, and *ex cathedra* to deliver his judgments. It cannot be said, that this was any thing like a high style of conversation; it had nothing like full or free discussion; it had little even like free interchange of sentiments or opinions; it was occasionally enlivened with wit, oftener broken by a growl or a sneer from him and from him alone; but his part of it was always arrogant and dictatorial; nor after men's curiosity had once been gratified by assisting at one of these talks, did any but

the small number of his familiar and admiring friends often desire to repeat the experiment. His talk was most commonly for victory, rather than directed to the clearing up of rational doubt, or the ascertaining of important truth: nor unless upon the serious subject of religion, and upon some of the political points involved in the Whig and Tory controversy, did he ever seem to care much on which side he argued, dogmatised, laughed boisterously, or sneered rudely. His manners were, in some trifling particulars, formal and courtly; that is to say, he greatly regarded rank and station, bowed even more profoundly to dignitaries of the church than to temporal peers, and shewed overdone courtesy to women, unless when his temper was ruffled by opposition; but in all that constitutes a well-bred person—abnegation of self, equable manner, equal good humour on all subjects of talk, undistinguishing courtesy to all persons—it would not be easy to name any person more entirely defective among those who have ever lived in good company. His external and accidental defects added much to the outward roughness, but were wholly independent of the real want of good breeding by which he was so much distinguished. His awkward motions—his convulsive starts—his habit of muttering to himself—his purblindness—his panting articulation—his uncouth figure—were all calculated to impress the beholder with the sense of his being an uncivilized person, but would all have been easily forgotten had they only covered the essentials of politeness, and not been the crust of manners essentially unrefined. Of those personal peculiarities Miss Burney has preserved a very lively representation:

"He is, indeed, very ill-favoured! Yet he has natur-

ally a noble figure: tall, stout, grand, and authoritative; but he stoops horribly; his back is quite round; his mouth is continually opening and shutting, as if he were chewing something; he has a singular method of twirling his fingers and twisting his hands; his vast body is in constant agitation, see-sawing backwards and forwards; his feet are never a moment quiet; and his whole great person looked often as if it were going to roll itself, quite voluntarily, from his chair to the floor.

"Since such is his appearance to a person so prejudiced in his favour as I am, how I must more than ever reverence his abilities, when I tell you that, upon asking my father why he had not prepared us for such uncouth, untoward strangeness, he laughed heartily, and said he had entirely forgotten that the same impression had been, at first, made upon himself, but had been lost even on the second interview ———

"How I long to see him again, to lose it, too!—for, knowing the value of what would come out when he spoke, he ceased to observe the defects that were out while he was silent.

"But you always charge me to write without reserve or reservation, and so I obey as usual. Else I should be ashamed to acknowledge having remarked such exterior blemishes in so exalted a character. His dress, considering the times, and that he had meant to put on all his *best becomes*, for he was engaged to dine with a very fine party at Mrs. Montagu's, was as much out of the common road as his figure. He had a large, full, bushy wig, a snuff-colour coat, with gold buttons, (or, peradventure, brass,) but no ruffles to his doughty fists; and not, I suppose, to be taken for a Blue, though going to the

Blue Queen, he had on very coarse black worsted stockings."*

They, however, who only saw this distinguished person once or twice in society, were apt to form a very erroneous estimate of his temper, which was not at all morose or sullen, but rather kindly and sociable. He loved relaxation; he enjoyed merriment; he even liked to indulge in sportive and playful pleasantry, when his animal spirits were gay—pleasantry, indeed, somewhat lumbering, but agreeable, from its perfect heartiness. Nothing can be more droll than the scene of this kind of which Mr. Boswell has preserved the account, and into the humour of which he seems to have been incapable of entering. When some one was mentioned as having come to Mr. (afterwards Sir Wm.) Chambers, to draw his will, giving his estate to Sisters, Johnson objected, as it had not been gained by trade; "'If it had,' said he, 'he might have left it to the dog Towser, and let him keep his own name.'" He then went on "laughing immoderately at the *testator* as he kept calling him. 'I dare say,' said he, 'he thinks he has done a mighty thing; he won't wait till he gets home to his seat—he'll call up the landlord of the first inn on the road, and, after a suitable preface on mortality and the uncertainty of life, will tell him that he should not delay making his will; 'and here,

* It is truly painful to say, what is the real truth, that so excellent a writer as this lady once was, should have ended by being the very worst, without any single exception, of all writers whose name ever survived themselves. Such vile passages as this are in every page of her late works, and are surpassed by others—"A sweetness of mental attraction that magnetized longer from infirmity and deterioration of intellect from decay of years." (II., 44.) Such outrages are all but breaches of decorum.

Sir,' will he say, 'is my will, which I have just made, with the assistance of one of the ablest lawyers in the kingdom,' and he will read it to him, (laughing all the time.) He believes he has made this will; but he did not make it: you, Chambers, made it for him. I trust you have had more conscience than to make him say 'being of sound understanding'—ha! ha! ha! I hope he has left me a legacy. I'd have his will turned into verse, like a ballad.' Mr. Chambers," says Boswell, "didn't by any means relish this jocularity, upon a matter of which *pars magna fuit*, and seemed impatient till he got rid of us. Johnson couldn't stop his merriment, but continued it all the way, till he got without the Temple gate; he then burst into such a fit of laughter, that he appeared to be almost in a convulsion, and, in order to support himself, laid hold of one of the posts on the side of the foot pavement, and sent forth peals so loud that, in the silence of the night, his voice seemed to resound from Temple Bar to Fleet Ditch." (II., 270.)

His laugh is described as being peculiarly hearty, though like a good humoured growl; and one drolly enough said, "he laughs like a rhinoceros." He was, when in good spirits, ever ready for idleness, and even frolic; and his friend has recorded an amusing anecdote of himself and Messrs. Beauclerk and Langton, once rousing him at three in the morning after dining in a tavern, when he cheerfully got up and said they must "make a day of it." So forth they sallied, played such pranks in Covent Garden Market as boys broke loose from school might indulge in, and ended by going down the river and dining at Greenwich.

His love of children may be added to the account of

his good humour and his kindness. This has indeed been observed as often accompanying the melancholic temperament, as if their innocence and defencelessness were a relief and repose to the agitated mind. The same love of children was observed in Sir Isaac Newton, and it was an accompaniment of the case of which I have already given the outlines. Johnson also liked the society of persons younger than himself; and to the last had nothing of the severeness, querulousness, and discontent with the world, which the old are often seen to shew. Indeed at all times of his life he liked to view things rather on their light side, at least in discussion; and he was a decided enemy to the principles of those who superciliously look down upon vulgar enjoyments, or ascetically condemn the innocent recreations of sense. Though he never at any period of his life, except during his intimacy with Savage, was intemperate, (for his often drinking alone as he said "to get rid of himself," must be regarded only as a desperate remedy attempted for an incurable disease,) yet he loved at all times to indulge in the pleasures of the table, and was exceedingly fond of good eating, even while for some years he gave up the use of wine. It was a saying of his in discussing the merits of an entertainment at which he had been a guest, "Sir, it was not a dinner to ask a man to." With the breakfasts in Scotland he expressed his entire satisfaction: and in his 'Journey,' he says that if he could "transport himself by wish, he should, wherever he might be to dine, always breakfast in Scotland."

All these, however, are trifling matters, only made important by the extraordinary care taken to record every

particular respecting his habits, as well as his more important qualities.

He was friendly and actively so, in the greatest degree; he was charitable beyond what even prudential considerations might justify; as firmly as he believed the Gospel, so constantly did he practise its divine maxim, "that it is more blessed to give than to receive." His sense of justice was strict and constant; his love of truth was steady and unbroken, in all matters as well little as great; nor did any man ever more peremptorily deny the existence of what are sometimes so incorrectly termed white lies; for he justly thought that when a habit of being careless of the truth in trifling things once has been formed, it will become easily, nay, certainly, applicable to things of moment. His habitual piety, his sense of his own imperfections, his generally blameless conduct in the various relations of life, has been already sufficiently described, and has been illustrated in the preceding narrative. He was a good man, as he was a great man; and he had so firm a regard for virtue that he wisely set much greater store by his worth than by his fame.*

* The edition of Boswell by my able and learned friend Mr. Croker, is a valuable accession to literature, and the well known accuracy of that gentleman gives importance to his labours. I have mentioned one instance of his having been misled by the narrative of Sir Walter Scott from neither having attended to the dates.—*Supra*, p. 58.

ADAM SMITH.

WITH AN ANALYSIS OF HIS GREAT WORK.

In the last years of the seventeenth century were born two men, who laid the foundation of ethical science as we now have it, greatly advanced and improved beyond the state in which the ancient moralists had left it, and as the modern inquirers took it up after the revival of letters, Bishop Butler and Dr. Hutchinson. The former, bred a Presbyterian, and exercised in the metaphysical subtleties of the Calvinistic school, had early turned his acute and capacious mind to the more difficult questions of morals, and having conformed to the Established Church, he delivered, as preacher at the Rolls Chapel, to which office he was promoted by Sir Joseph Jekyll, at the suggestion of Dr. Samuel Clarke, a series of discourses, in which the foundations of our moral sentiments and our social as well as prudential duties were examined with unrivalled sagacity. The latter having published his speculations upon the moral sense, and the analogy of our ideas of beauty and virtue, while a young teacher among the Presbyterians in the north of Ireland, was afterwards for many years Professor of Moral Philosophy in the University of Glasgow, and there delivered his Lectures, which, by their copious illustrations, their amiable

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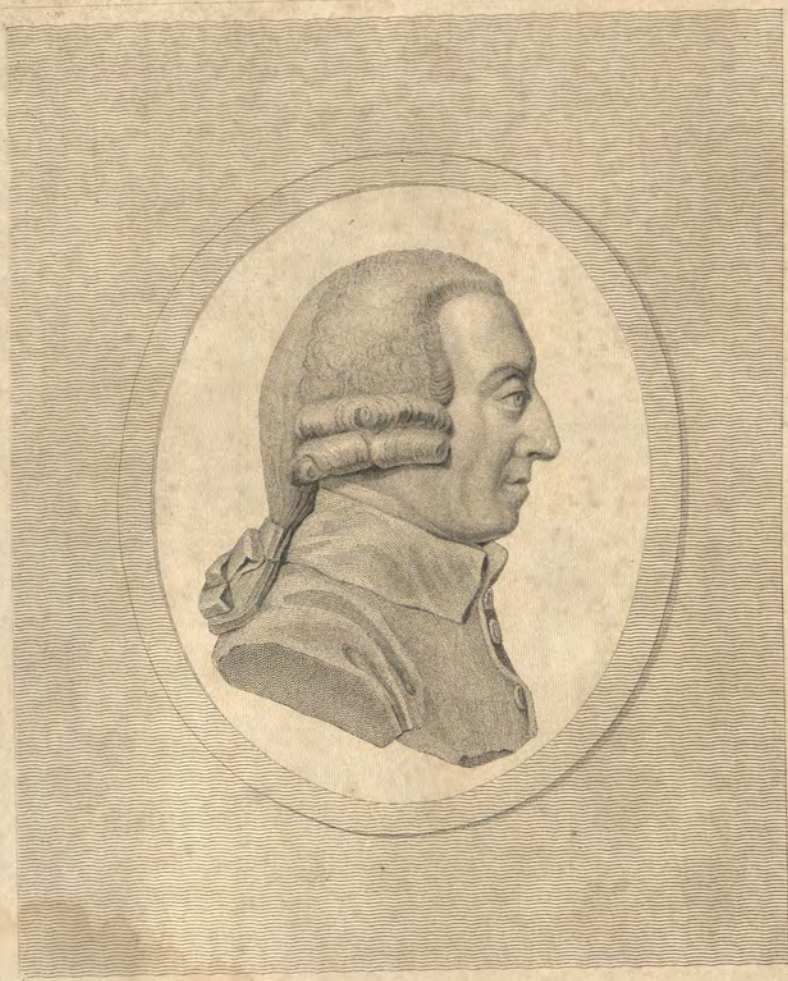

Engraved by J.Brown.

ADAM SMITH.

London. Henry Colburn. 1846.

tone of feeling, their enlightened views of liberty and human improvement, and their persuasive eloquence, made a deeper impression than the more severe and dry compositions of Butler could ever create, and laid the foundation in Scotland of the modern ethical school. In this he restored and revised, rather than created a taste for moral and intellectual science, which had prevailed in the fifteenth and early in the sixteenth centuries, but which the prevalence of religious zeal and of political faction had for above two hundred years extinguished. He restored it, too, in a new, a purer, and a more rational form, adopting, as Butler did nearly at the same time, though certainly without any communication, or even knowledge of each other's speculations, the sound and consistent doctrine which rejects as a paradox, and indeed a very vulgar fallacy, the doctrine that all the motives of human conduct are directly resolvable into a regard for self-interest.* Nothing more deserving of the character of a demonstration can be cited than the argument in a single sentence, by which he overthrows the position, that

* Hutchinson had taught his doctrines in Dublin some years before Butler's 'Sermons' were published in 1726, and had even published his 'Inquiry into Beauty and Virtue,' for the second edition of that work appeared in the same year. The 'Sermons' had indeed been preached at the Rolls, where he began to officiate as early as 1718; but nothing can be more unlikely than that any private intimation of their substance should have been conveyed to the young Presbyterian minister in Ireland. Indeed, his book was written soon after he settled at the academy, in 1716, which he taught near Dublin; for the Lord-Lieutenant, Lord Molesworth, who was appointed in that year, revised the manuscript of it. Butler and Hutchinson were contemporaries; one born 1692, the other 1694. Dr. Smith was born considerably later, in 1723; Mr. Hume in 1711.

we seek other men's happiness, because by so doing we gratify our own feelings. This presupposes, says he, that there is a pleasure to ourselves in seeking their happiness, else the motive, by the supposition, wholly fails. Therefore there is a pleasure as independent of selfish gratification, as the thing pursued is necessarily something different from the being that pursues it.

These two great philosophers, then, may be reckoned the founders of the received and sound ethical system, to which Tucker, by his profound and original speculations, added much. Hartley and Bonnet, who were a few years later, only introduced a mixture of gross error in their preposterous attempts to explain the inscrutable union of the soul and the body, and to account for the phenomena of mind by the nature or affection of the nerves; while at a somewhat earlier date, Berkeley, an inquirer of a much higher order, had applied himself to psychological, and not to ethical studies.

As ethics in its extended sense comprehends both the duties and capacities, and the moral and intellectual qualities of individuals, and their relations to each other in society, so may it also extend to the interests and the regulation of society, that is, to the polity of states, in both its branches, both the structure and the functions of government, with a view to securing the happiness of the people. Hence it may include everything that concerns the rights, as well as the duties of citizens, all that regards their good government, all the branches of jurisprudence, all the principles that govern the production and distribution of wealth, the employment and protection of labour, the progress of population, the defence of the state, the education of its inhabitants; in a word, political science,

including, as one of its main branches, political economy. When, therefore, ethical speculations had made so great progress, it was natural that this important subject should also engage the attention of scientific men; and we find, accordingly, that in the early part of the eighteenth century the attention of the learned and, in some but in a moderate degree, of statesmen also, was directed to these inquiries. Some able works had touched in the preceding century upon the subjects of money and trade. Sound and useful ideas upon these were to be found scattered through the writings of Mr. Locke. But at a much earlier period, Mr. Min, both in 1621 and 1664, had combatted successfully, as far as reasoning went, without any success in making converts, the old and mischievous, but natural fallacy, that the precious metals are the constituents of wealth. Soon after Min's second work, 'The Increase of Foreign Trade,' Sir Wm. Petty still further illustrated the error of those who are afraid of an unfavourable balance. of trade, and exposed the evil policy of regulating the rate of interest by law. A few years before Sir Wm. Petty's most celebrated work, his 'Anatomy of Ireland,' appeared Sir Josiah Child's 'Discourse of Trade,' 1668, in which, with some errors on the subject of interest, he laid down many sound views of trade, the principle of population, and the absurdity of laws against forestalling and regrating. In 1681 he published his 'Philopatris,' which shews the injurious effects of monopolies of every kind, and explains clearly the nature of money. But Sir Dudley North's 'Discourse,' published in 1691, took as clear and even as full a view of the true doctrines of commerce and exchange as any modern treatise; building its deductions upon the fun-

damental principle which lies at the root of all these doctrines, that, as to trade, the whole world is one country, of which the natives severally are citizens or subjects; that no laws can regulate prices; and that whatever injures any one member of the great community injures the whole.

It must be observed that beside the treatises thus early published on œconomical science, we find occasionally very sound doctrines unfolded, and very just maxims of policy laid down, by well known writers, who incidentally touch upon œconomical subjects in works written with other views. Thus Fenelon, in his celebrated romance of 'Telemachus,' has scattered various reflexions of the truest and purest philosophy, upon the theory of commercial legislation, as well as upon many other departments of administration. It is due to the memory of a Romish prelate, and a royal preceptor in an absolute monarchy, to add that all his writings breathe a spirit of genuine religious tolerance, and of just regard to the civil rights and liberties of mankind.

In the eighteenth century, the writers of Italy appear to have taken the lead in these inquiries. The active and lively genius of the people, the division of the country into small states, the access to the ears of the Government which this naturally gives to learned men, the interest in the improvement of his country which the citizen of a narrow community is apt to feel, gave rise to such a multitude of writers on subjects of political economy, that when the Government of the Italian Republic, with a princely liberality, directed Custodi to publish a collection of their works at the public expense, in 1803, they were found to fill no less than fifty octavo volumes.

The earliest of these writings, which lay down sound principles to guide commercial legislation, is the Memoir ('Discorso Economico') of Antonio Bandini of Siena, addressed in 1737 to the Grand Duke of Tuscany upon the improvement of the great Maremma district. The author recommended free trade in corn; advised the granting of leases to tenants, that they might have an interest in the soil; and proposed the repeal of all vexatious imposts, and a substitution in their stead of one equal tax upon all real property, without excepting either the lands of the nobles or of the church. This able and enlightened work, in which the germs of the French economical doctrines are plainly unfolded, was only published in 1775; but when Leopold succeeded his brother in 1765, he showed his accustomed wisdom and virtue in the government of Tuscany, by adopting many of Bandini's suggestions for improving the Maremma. Other writers followed in the same course. Fernando Galiani, of Naples, published in 1750 his treatise, 'Della Moneta,' explained on sound principles that the precious metals are only to be regarded as merchandise, and shewed clearly the connexion between value and labour. The discourse, *Sopra i Bilanci delle Nazione*, by Carli, of Capo d'Istria, in 1771, laid down the true doctrine respecting the balance of trade. Genovesi, a Neapolitan, in 1768, supported the position of perfect freedom in the corn trade, though not in that of other merchandise or of manufactures. But in 1769, Pillo Verri, a Milanese, in his work, '*Sulle Leggi Vincolanti*,' maintained the doctrine of absolute and universal freedom of commerce. The same thing was mentioned about the same

period in the work of Ferdinando Paoletti, a Florentine, entitled, '*Veri Mezzi di rendere felice le Società.*' So that, before and after the French economists began their useful and enlightened labours, the fundamental doctrine of Adam Smith's celebrated work had been laid down by a great number of writers in the different parts of the Italian Peninsula.*

The progress made in France by the same class of philosophers and statesmen was very considerable, and about the same time. Although the Italian writers rather preceded, yet there is no doubt their works were unknown beyond the Alps for many years after the French had applied themselves successfully to the cultivation of economical science. It is supposed, and apparently with reason, that a mercantile man, who also held the rank of a landed gentleman, Vincent Seigneur de Gournay of St. Malo, educated for trade at Cadiz, but always a bold thinker and a diligent student, was the first who adopted the principles of a liberal and enlightened commercial policy. His reputation both as an eminent merchant and as a learned inquirer had become considerable, when he was appointed, in 1751, to the office of *Intendant de Commerce*, answering in some sort to our President of the Board of Trade. His administration was a constant struggle with the narrow prejudices of the old system, which rests on encouragement, protection, prohibition, endless intermeddling with the distribution of capital,

* Not having access to Custodi's work, and only having seen some of the treatises contained in it, I have relied on the statement given in the learned article on Political Economy, ('Penny Cyclopædia,' vol. xviii. p. 339-40.)

and the employment of labour. He was so often and so powerfully thwarted, that his reforms were anything but complete. All he attempted was in the right direction; and M. Turgot, his disciple, who afterwards, in his own administration of the higher department of finance, carried the same views farther, has given us a luminous abstract of those sound principles which De Gournay laid down. The duty of government, according to him, was to give all branches of industry that freedom of which the monopolizing spirit of different classes had so long deprived them; to protect men in making whatever use they please of their capital, their skill, their industry; to open among the makers and sellers of all goods the greatest competition, for the benefit of the buyers in the low price and good quality of the things sold, and among buyers the greatest competition, that the producer or the importer may have the due stimulus to his exertions; and to trust the natural operations of men's interests for the increase of national wealth and the general improvement of society, when all fetters are removed, and all absurd and pernicious encouragements by the State withheld.

It was not for some years after these enlightened and rational principles had been adopted, promulgated, and acted upon by M. de Gournay, that Dr. Quesnay, who had, from his youth upwards, attended to agricultural questions, and even somewhat to farming pursuits, but had been always immersed in the studies of his profession, began to cultivate economical science. He had published several works of the greatest ability and learning on medical and surgical subjects, had acquired extensive practice, and risen to the rank of the King's first

physician* before he had matured his speculations so as to publish any treatise on political subjects; and though he was eighteen years older than M. de Gournay, the latter had been several years at the head of the commercial administration before the doctor's first work

* A very interesting work was published by my worthy friend Mr. Quintin Crawford, in his 'Mélanges d'Histoire et de Littérature,' being the journal of Madame de Hausset, the waiting gentlewoman of Madame de Pompadour. It contains some anecdotes of Dr. Quesnay extremely curious and characteristic, and shows on what an intimately familiar footing the great philosopher lived with the royal voluptuary, who had the sense to relish his conversation, and used to call him "his thinker," (mon penseur.) Mr. Crawford gives an accurate sketch of his character; and after mentioning that his followers always termed him "Le Maître," and decided their disputes by "Le Maître l'a dit," like the disciples of Plato, he tells us that, at his death, a funeral oration was pronounced by M. de Mirabeau, before the assembled sect, all in deep mourning. He adds, what may easily be believed, that this discourse was a "chef-d'œuvre de ridicule et d'absurdité." A great discussion, as it seems to me on a question very unimportant, has been raised by political economists, not much to the credit of their philosophical feelings, whether Quesnay's family were of as low a station as some represent them, and whether it be really true that they could not afford to have him taught to read in his boyhood. Surely the Memoirs of the Academy must be reckoned a decisive authority on this question. In the historical part of the volume for 1774, it is distinctly stated, as a matter well known, (p. 122,) that his father was an Avocat au Parlement de Montfort, and an intimate friend of the Procureur du Roi. Grimm mentions Quesnay in a very different manner from most others. He thus speaks of the economists and the great founder of their sect:—"Depuis que l'œconomie politique est devenue en France la science à la mode, il est formé une secte qui a voulu dominer dans cette partie. M. Quesnay s'est fait chef de cette secte."—"Le vieux Quesnay est un cynique décidé. M. de Fobernais n'est pas tendre; ainsi cette querelle ne se passera pas sans quelques faits d'armes." (Corr.) He repeatedly gives him the same epithet of *cynique;* probably the light conversation of Grimm had not attracted his notice, or gained his respect.

appeared—his excellent papers on the Corn Trade in the Encyclopædia.* His celebrated '*Tableau Economique*,' in which the accumulation and distribution of wealth is stated with great ingenuity and originality, though in a somewhat abstruse form, appeared in 1758; and his greatest work, the '*Physiocratie*,' ten years later. His doctrine was, that the cultivation of the soil alone adds to the wealth of any state; that they alone who till the ground are entitled to be called productive labourers; that their industry alone yields a net or clear produce ('produit net') in the shape of rent over and above the expense of raising it by paying the workman's wages, and replacing with the ordinary profit the capital expended; that all other labour, as that of manufacturers who fashion the raw produce, of merchants or retail dealers who distribute it, whether raw or worked up, and professional men who do not operate upon produce at all, are, though highly useful, yet wholly and all equally unproductive, because those classes only receive their wages, or the profit of their stock, from the productive class—the agriculturists. From this theory he deduced practical inferences all of great importance, but of different degrees of value or accuracy; that all commerce, both external and internal, both in the raw and manufactured produce of any country, should be left entirely free; that all industry of every class should be alike unfettered; that all men should be left to employ their capital and their labour as their own view of their own interest directs them; that no tax should be im-

* The article 'Fermier' appeared in 1756; 'Grains' in 1757; M. Turgot's able articles appeared in 1756.

posed on any goods or any labour except a single impost, and that upon the net produce, the rent of land—this (the impôt foncière) taking the place of all others, and alone being levied to support the state.

Dr. Quesnay's ingenuity and learning, the boldness of his views, their great simplicity, their originality, all made a powerful impression; but from these very causes, and still more from the harshness and obscurity of the style in which they were unfolded—perhaps one might say enfolded,—they were better calculated to find acceptance with the learned few than with the general mass of readers. Upon these few, however, they soon made a deep impression, which was increased by their author's simple and amiable manners, his exemplary purity, though living in a corrupt court, and the admirable talent which he had in conversation, of exposing his doctrines, like our Franklin, by the aid of apposite fables or apologues. He became thus easily the leader, or head of a sect, and he was looked up to by his disciples with the same reverence that the followers of the ancient sages paid to the objects of their veneration. The Marquis of Mirabeau, father of the famous revolutionary leader; M. Mercier de la Rivière; M. Dupont de Nemours; M. Condorcet, and M. Turgot, for some time Controller General of the Finances, were the most celebrated of this school. Their chief died as early as 1774, but they continued to instruct mankind by their writings, which, however ingenious and learned, were almost all deprived of their full effect upon the bulk of readers, by the dry, scholastic, and even crabbed style in which they were composed, and the want of that simple arrangement and that plain manner of unfolding their system which

forms the first and the essential merit of didactic composition.

It must be added that on the structure of government, the doctrines of the sect were far less enlightened than upon its functions. While they held the whole happiness of society to depend upon a wise and honest administration of the supreme power in the state, they never considered how necessary it was to provide a security for that course being pursued, by establishing checks upon the rulers. Their doctrine was that what they called a *despotisme légale*, or an absolute power vested in the sovereign, and exercised according to fixed laws, is the most perfect form of government; and they entirely forgot that either no change whatever can be made in these laws, let ever so great a change happen in the circumstances of the community, or that all laws may be abrogated or altered at the monarch's pleasure, and thus, that the epithet "legal" dropt from their definition. In short they forgot, that their theory to be tolerable required the despot to be an angel, in which case, no doubt, their constitution would be perfect, but in no other. It is singular, that with all this, we find in the authentic accounts of their founder's habits that he never could feel at his ease in the presence of Louis XV., and confessed his reason to be, his thinking all the while that he stood before a man who had the power of destroying him. This is recorded in the Memoirs to which I have above referred, and we find two instances in the same work, illustrating the practical operation of the "*despotisme légale.*" To the Doctor's great dismay, M. de Mirabeau, his steady follower, was suddenly hurried away to the fortress of Vincennes, because an expression in his speculative work

on Taxation being misunderstood by the King, had given him offence; and when Turgot was anxious to obtain the King's assent, on the occasion of his proposing one of the great municipal reforms which he supported, he took the indirect, if not humiliating course of speaking to the Doctor and to the mistress's waiting-woman, to whom the Doctor gave a note of the plan, which by this circuit reached the Royal ear.

But our view of what has been accomplished in economical science, before the period to which the following Life refers, would be most imperfect, if we passed over the Essays of Mr. Hume. They were published in 1752, and gave the first clear refutation of the errors which had so long prevailed in Commercial Policy, and the first philosophical as well as practical exposition of those sound principles, which ought to be the guide of statesmen in their arrangements, as well as of philosophers in their speculations upon this important subject. I have already treated of this admirable work in the life of that illustrious writer.*

It was necessary to give a summary of the progress which had been made in ethical and economical philosophy before the time of Dr. Smith, in order that we might duly appreciate the invaluable services which he rendered to both those branches of science, and to prevent us from supposing, as men are always prone to do, that he whose merit as a great improver can hardly be estimated too highly, was also the creator of the system which he so largely contributed to extend and to consolidate. We may now proceed to the history of his life.

Adam Smith was born at Kirkaldy, in the Scotch

* Vol. I.

county of Fife, on the 5th of June, 1723, and was a posthumous child, his father having died a few months before. That gentleman was Controller of the Customs at the port, having been originally bred to the law, and afterwards held the office of Private Secretary to Lord Loudon, Secretary of State, and keeper of the Great Seal. His wife was a daughter of Mr. Douglas, of Strathenry. They had no other child but the philosopher, whose education devolved upon his mother, and was most carefully and affectionately conducted.

When a child of only three years old, he was stolen by a gang of the vagrants, called in Scotland, tinkers, and resembling gipsies in their habits—the same race which Fletcher of Saltoun describes as having in his day become so numerous as to form a considerable proportion of the Scottish people. It was a fortunate circumstance, that being soon missed, his uncle, at whose house he was residing, pursued the wretches, and restored him to his affrighted parent.

He received the first rudiments of his education at the school of David Miller, an eminent teacher, several of whose pupils filled important public stations in after life. Being of weak constitution in his early years, books formed his only amusement, and his companions retained all their lives a lively recollection of his devotion to reading and of the great tenacity of his memory. He was also remarkable even in those early days for that absence which so distinguished him in company ever after. At the age of fourteen, as is usual in Scotland, he was sent to the University, and remained at Glasgow for three years, when he obtained an exhibition to Baliol College.

At Oxford he remained for seven years, and applied

himself to the acquisition of various learning. He became master of both ancient and modern languages, and exercised himself in translation, especially from the French, a mode which, like his illustrious friend Robertson, he always recommended, as tending to improve the student's style, by giving a facility in the use of his own language. But it is somewhat remarkable that his chief study was of mathematical and physical science, a walk little frequented at the University, and which, except as subservient to other speculations, he himself appears to have ever after abandoned. For some time, however, he must have retained both the taste and the capacity for those exalted studies; for Mr. Stewart recollects his father, the celebrated geometrician, reminding him of a problem proposed to him by Dr. Simson, which had occupied his attention after he had left College, and had come to reside at Glasgow.

On his return from Oxford he went to reside for two years at Kirkaldy with his mother, for whom he entertained through his whole life an extraordinary and a perfectly well-grounded affection, being ever happier in her society than in any other; and he enjoyed the unspeakable blessing of having her days prolonged till he had himself reached a good old age. The plan of his family had been, that he should enter the English Church, and with this view he had been sent to Oxford. But Mr. Stewart says, that he did not find this profession suit his tastes; perhaps it did not accord with his habits of thinking; certain it is that he abandoned all thoughts of it, and contented himself with those chances of very moderate preferment which the Scotch Universities present to lovers of literature and science.

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It is clearly proved by the course and by the tone of his remarks on English universities,* that the discipline and habits of Oxford had in no way gained either his affection or his respect. Probably he could not easily forget the silly bigotry which caused his superiors to seize his copy of Hume's 'Treatise of Human Nature' when he was surprised reading it, and to administer a reprimand for the offence.

In 1748 he removed to Edinburgh, accompanied by his mother; and he read for about three years a course of Lectures on Rhetoric under the patronage of Lord Kames, himself a very successful follower of critical studies, and whose writings were the first to introduce in this island a sound philosophy upon those subjects. Dr. Smith also became intimately acquainted with the eminent men of letters who then adorned the Scottish capital, and some of whom were not yet well known to the world. Mr. Hume, Dr. Robertson, Dr. Blair, were among those literary men; Mr. Wedderburne afterwards Lord Loughborough, and Mr. Johnstone afterwards Sir William Pulteney, were severally members of the Scottish Bar. In 1751 he was elected to the Professorship of Logic in the University of Glasgow, which he exchanged the year after for that of Moral Philosophy. It had till four years before been filled by Hutcheson, under whom he had studied with all the admiration which the ingenuity and eloquence of that great teacher so naturally inspired, and with the affection which was commanded by his amiable character.

This important situation of a public teacher, one

* 'Wealth of Nations,' b. v., c. 1.

of the most exalted to which any man can aspire, was certainly of all others the most perfectly adapted to his genius, as it was the best suited to his habits and his tastes; for the love of speculation was in him combined with the desire of communicating information to others and of promoting their improvement. Even in society all his life, there was something didactic in the style of his conversation. He was fond of laying down principles, illustrating them, and tracing their consequences. He was not, indeed, in such careless discussions, always either very practical or very reflecting and circumspect as to conclusions; and his hasty opinions, whether of men or of things, were often the result of momentary impressions, which he was quite ready to correct upon reconsideration. But the interest which he took in his subject always animated his discourse; and no one could more appropriately, or with greater claims to his hearer's attention, illustrate the bearing of the truths which he meant to convey. His language, too, was choice, both elegant, various, and plain; his manner having been formed upon the best models which he had, as we have seen, diligently studied, as indeed he had the principles of rhetoric, the subject of his earliest lectures. Nor had he any difficulty of extempore composition, though like many greater speakers, he at first was apt to hesitate until he became warmed with his subject, and then he could prelect with as great fluency of language as copiousness of illustration. It may thus be well supposed that on the subjects of his lectures, when he had given them the full consideration which was required for preparing himself, he could convey instruction in a manner at once sound, luminous, and attractive. Accord-

ingly we find all accounts agree in representing him as a teacher of the very highest order, and his pupils as receiving instruction with a respect approaching to enthusiasm. Even the talents of Hutcheson had failed to recommend these studies to as general and cordial acceptation. The taste for metaphysical and ethical inquiries was greatly increased; discussions of the doctrines he taught became the favourite occupation in all the literary circles, and formed the subjects of debate in the clubs and societies of the place; even the peculiarities of his manner and pronunciation were eagerly caught up and imitated, though there was nothing which he less affected than the graces of delivery, and nothing in which he less excelled; but it seemed like the free and spontaneous tribute to genius and learning which courtly servility had paid to one monarch by assuming his wry neck, and to another by adopting his false grammar,* so that he may perhaps be allowed to have more than any other celebrated teacher of our own times, attained the observance with which the ancient sects cultivated their masters, while his friend and co-adjutor, De Quesnay, in this respect passed all who never actually taught.

The late eminent Professor Millar, who had been a pupil of Dr. Smith's, and who remained to his death one of his most intimate friends, has given a valuable account of his lectures which Mr. Stewart inserted in his 'Biographical Sketch.' When he taught the Logic Class, he

* Augustus and Louis XIV. Happily the Roman parasites could not, like the Parisians, bequeath their monarch's deformity, but *mon carosse* is still French.

appears to have rather converted the course into one upon rhetoric and belles lettres, only giving an introductory view of the School Logic and Metaphysics. The reason given for what appears to me a great departure from the proper duties of that chair, is, that he considered the best illustration of the mental powers to consist in examining the several ways of communicating our thoughts by speech, and tracing the principles upon which literary composition becomes most subservient to persuasion or entertainment. It really seems difficult to imagine a more unsatisfactory reason for teaching rhetoric as logic. The difference of the two studies was much more accurately perceived by another great light,—Lord Coke, who places them rather in contrast than in resemblance to each other, when he quaintly compares the original writ to logic, and the count or pleading to rhetoric, which assuredly it only resembles in being as unlike logic, as the plea is unlike the writ. But I apprehend, that whatever might be given as a *ratio justifica*, the *ratio suasoria* was the accidental possession of a course of lectures already delivered in Edinburgh in his earlier years; and that, had this course been directed to explain the learning of the Schools, the rules of argumentation, the principles of classification, and the limits of the various branches of science, the proper office of logic, we should not have heard of the somewhat unaccountable theory which has been cited from Mr. Millar's note.

After one course, however, of this description, he taught Moral Philosophy for twelve years, with extraordinary ability and the greatest success. It is most deeply to be lamented that of the four branches into which his course was divided, the two most interesting

should not have reached us, the MS. having been destroyed a short time before his death. He first unfolded the sublime and important truths of Natural Theology, and the faculties and principles of the mind on which it rests, by far the most elevated of all human speculations, and one, as Archbishop Tillotson* has most soundly declared, which so far from being worthy of jealousy on their part who maintain the doctrines of Revelation, is of necessity the very foundation essential to support its fabric. Whether we regard the hopes of man as built upon his unassisted reason, or as confirmed by the light of religion, no study can match that of Natural Theology in the loftiness of its nature, and the importance of its tendency.—"Neque cum homines ad Deos ulla re proprius accedunt quam salutum hominibus dando." (Cic. 'Pro Lig.') He next explained the doctrines of Ethics, or the rules and principles by which men judge of the qualities in point of wisdom and goodness, of human

* "All religion is founded upon right notions of God and his perfection, insomuch that divine revelation itself does suppose those for its foundations, and can signify (disclose or reveal) nothing to us unless they be first known and believed. For unless we be first firmly persuaded of the providence of God and of his superintendence over mankind, why should we suppose that he makes any revelation of his will to us? Unless it be first actually known that God is a God of truth, what ground is there for believing his word? So that the principles of natural religion are the foundations of that which is revealed." (Serm. xli.) This sermon was preached before the King and Queen 27th October, 1692, at the thanksgiving for the naval victory, and contains even a more searching exposure of the errors of Romanism than the celebrated sermon (xl.) on the Church of Rome. The sermon on "Steadfastness in Religion," seems to me his Grace's other great masterpiece in contending with Rome. It is a demonstration of the great practical doctrine of the right of private judgment, and it tallies in spirit with the above passage in the 41st.

action. The third division of his course was, properly speaking, a branch of the second; it embodied general jurisprudence, the structure of government, and the theory of legislation. In the fourth and last branch he treated of the principles upon which the wealth, power, and generally the prosperity of communities depend, and of the institutions relating to commerce, finance, instruction, and defined, in a word, the functions of government as contradistinguished from its structure. Of the second and fourth divisions he afterwards gave the substance in his published works; unhappily, the whole of his papers containing the first and the third series of Lectures, were destroyed by himself some time before he died, together with the Lectures on Rhetoric, which are described by Mr. Millar as having been composed with extraordinary care, and as having contained critical discussions of great delicacy of taste, as well as extensive learning. I cannot help regarding it as a circumstance however unfortunate for the world, peculiarly happy for his executors, that these invaluable manuscripts were not left in their hands, with the injunction which his will contained to burn them, for if ever men can be conceived to lie under a temptation to strain at placing their public duty in opposition to their private obligations, it certainly would have been those eminent persons, Dr. Black and Dr. Hutton, shrinking from the painful office of performing the trusts of their friend's will.

While Dr. Smith was engaged in the duties of his Professorship at Glasgow, he published the first works which he gave to the world. In 1755 he contributed to the 'Edinburgh Review,' of which I have spoken in the 'Life of Robertson,' a paper of great merit, being a

criticism on Johnson's Dictionary. Allowing full praise to the merits of that important work, he yet very clearly shewed the want of strict philosophical principle with which it is justly chargeable, the different senses of words being rarely arranged in classes, or the particular modifications of each signification under the more general, and as it were leading or prevailing sense, and words apparently synonymous, being very often distinguished with little care. He illustrates his remarks by examining the words, *but* and *humour*, as given by Johnson, and by giving them on his own more systematic plan. The article is masterly in all respects, and carries conviction to every attentive reader. The specimen is as well executed as possible, and makes it a matter of regret, not indeed that the author should have confined his own labours as a lexicographer to pointing out the way instead of walking in it himself, but that his plan should not have been adopted and executed by others whose labour might have been better spared for so useful a work. This service to letters, indeed to science itself, still remains to be rendered, and if individuals should be scared from so toilsome an undertaking, it seems well suited to the joint exertions of some literary society. The zeal and activity of Voltaire, it may be mentioned, broke out almost on his death-bed, in persuading his colleagues of the Academy to accomplish a work of this kind, in some sort fellow to the one I speak of; for it was to remodel their Dictionary, giving the historical progress of the meaning attached to the words, with quotations from contemporary writers, and each Academician was to have taken a letter; he had begun himself to write upon the letter A, with his wonted industry, when that hand arrested him, to which the

laborious and the idle alike must submit, closing his long and brilliant career.

Dr. Smith's other paper in the Review is a letter to the editors upon the propriety of extending their plan, which had been confined to the criticism of works published in Scotland. He enters at some length into the general state of literature on the Continent, and shows a familiar acquaintance with it, that could only have been acquired by very extensive reading in the works of foreign writers. The advice which he gave would in all probability have been followed; but the Review was given up, as I have elsewhere stated*, in consequence of the ferment excited by the fanatical part of the Kirk.

In 1759 Dr. Smith published his 'Theory of Moral Sentiments,' being the greater part of the second division of his course of lectures, and the explanation of the principles upon which his ethical system rested. To the 'Theory' was subjoined a 'Dissertation on the Origin of Language,' a subject to which he had paid great attention. There is some doubt whether this was not added to the second edition of the work. Mr. Stewart is inclined to think that it was not in the first, but a different opinion has been confidently expressed by others. The success of this publication was great, and it was immediate. The book became at once generally popular; and Mr. Hume, who was in London at the time of its first appearance, wrote him a most lively and humorous letter, in which he gives the history of his friend's complete success. In this letter there is mentioned a circum-

* 'Life of Robertson,' Vol. I.

stance, too, which we shall presently see was destined to have a great influence on his future prospects. The celebrated Charles Townsend said, on reading the book, that he should make it worth the author's while to undertake the charge of the young Duke of Buccleugh's education, whose mother, the dowager Duchess, he had married.

The success of this excellent work, however, was confined, at least for a long time, to the author's own country. It was soon translated into French, and the publisher sought to give it more attraction by adding an absurd title to the original one—he called it 'Métaphysique de l'Ame." Grimm commends this as extremely clever; but adds that it had failed to obtain for the book any attention, and that it had entirely failed at Paris, which, however, he observes, proved nothing against its merits.*

After the 'Theory of Moral Sentiments' was published, Dr. Smith naturally made considerable changes in his course of lectures during the four years that he remained in Glasgow College. He greatly curtailed the second branch, having incorporated so large a portion of it in his book; and he extended the third and fourth heads—those parts which related to jurisprudence and political economy—giving more copious illustrations of the principles on which these important sciences are grounded.

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* "On a traduit depuis quelque tems la 'Théorie des Sentimens Moraux,' de M. Adam Smith, Professeur à Glasgow, en deux volumes in 8vo. Le traducteur ou le libraire, pour lui donner un titre plus piquant, l'a nommé spirituellement 'Métaphysique de l'Ame;' cet ouvrage a beaucoup de réputation en Angleterre, et n'a eu aucun succès à Paris. Cela ne décide rien contre son mérite." (Corr., IV., 291.)

In particular, his discussions of commercial policy were more elaborately conducted; and he profited by his intimacy with merchants and manufacturers of eminence in the great trading city in which he resided to obtain practical information which might illustrate, if not guide, his speculative views—possibly also correcting those views by bringing them to the test of experience by free discussion.

The progress of his opinions in making converts to the modern doctrines concerning trade is represented as having been considerable, even among those whose prejudices in favour of the older maxims were of long standing; but of course his philosophy was more readily adopted, and more extensively diffused by the pupils, who came to the consideration of the subject with no bias upon their minds from former habits of thinking or long-formed professional opinions.

In 1763 the project, already mentioned, of Charles Townsend, was carried into execution, and Dr. Smith was induced to resign his professorship, with the view of attending the Duke of Buccleugh on his travels. The settlement of an adequate annuity upon him made this arrangement one sufficiently consistent with ordinary prudence. But it may reasonably be doubted, if, after enjoying the advantages of a residence during a year or two abroad, his happiness would not have been better consulted by returning to the duties and habits of his academical life. Nothing, certainly, can be more clear, than that the official appointment to which this change in his plans ultimately led, was one deeply to be lamented, and indeed to be disapproved in every respect, however well meant. It is somewhat humbling to our national

pride to reflect that our Government could find no better employment, and no fitter reward for the most eminent philosopher of the age, than making him a revenue officer. For the last twelve years of his precious life he was condemned to go through the routine business of a Commissioner of the Customs;—as, some time after, one of the greatest poets who ever appeared in this island was made an exciseman, at seventy pounds a-year, for a bare subsistence, and daily threatened with removal, to die of hunger, if he did not square his conversation by the opinions on French politics which his superiors entertained.*

It must, however, be added, that nothing could better suit Dr. Smith, than the opportunity which his connexion with the Duke gave him of visiting France and Switzerland. They repaired in the spring of 1764 to Paris, where they only remained a few days, and proceeding to Toulouse, passed in that provincial capital a year and a-half. Except that the French spoken on the Garonne is by no means so pure as that of the Loire and other districts in the centre of the country, the place was well chosen for a residence connected with education. There was an university of good repute with an excellent library; it was also the seat of one of the most important parliaments, and of an engineer and artillery headquarters (a requisite of good society in my late friend

* It is a gratifying proof of the progress which has since those times been made, that no Minister could in our day propose such preferment to such men. An instance may probably be cited of an eminent poet being early in this century so employed; but there was a wide difference in the emoluments, and the place was nearly a sinecure.

Mr. Wickham's opinion); the society was polished and not dissipated, commerce and manufactures having somewhat unaccountably never established themselves in a city which seems well-suited to both from its central position and the neighbourhood of the canal, as well as from the fertility of the surrounding country. It is not doubtful that Dr. Smith obtained, by his residence in this ancient and flourishing city, and his intercourse with the well-informed and polished circles of its society, much of that accurate information respecting French affairs which plainly appears in his writings, and which, as he habitually distrusts the statements of political authorities, was the result of his own inquiries and observations*. From Toulouse they went to Geneva, where they passed two months, and then remained ten months in Paris. Here he enjoyed an intimate acquaintance with all the most eminent men of science and of letters, particularly D'Alembert, Necker, Marmontel, Helvetius, Morellet, Turgot, and above all, Quesnay, whose tastes and pursuits so much resembling his own formed the bond of a strong attachment. Though differing in opinion upon some fundamental points, he regarded his system as "the nearest approximation to truth that had ever been made in economical science,

* He has preserved in his 'Theory of Moral Sentiments' an anecdote, which, unless it is to be found in the earlier editions, I should imagine him to have heard at Toulouse; that when the unhappy Calas was murdered by the law, and among other torments a monk was sent to obtain his confession, the wretched sufferer, already broken on the wheel, exclaimed, "Can you, yourself, father, believe me guilty?" (I., 303.) The paragraph certainly is in one of the chapters which he says was altered in the edition of 1788.

while the singular modesty and simplicity" of the man had a powerful attraction for so congenial a nature. He was, as is well known, only prevented by Quesnay's death from dedicating to him the 'Wealth of Nations.' It appears by a letter of Morellet, published in his Memoirs, that notwithstanding Dr. Smith's residence at Toulouse, and his intimate acquaintance with the French language, he had never so far mastered it as to speak it tolerably well; but he could, though difficultly, converse in it without much inconvenience. "Il parloit," says the Abbé, "fort mal notre langue, mais nous parlâmes théorie commerciale, banque, crédit publique, &c." As the date of 1762 is given for this acquaintance, it might be deemed that this applies to his passing through Paris in 1764, rather than his residence there in 1766; but as the Abbé mentions having seen and conversed with him repeatedly, and adds, that Turgot, as well as Helvetius, had made his acquaintance, the time referred to must have been at his return from the south; for the twelve days spent at Paris, on his way to Toulouse, could not have given time to form their acquaintance.

Upon his return to England in the autumn of 1766, he went to reside with his mother at his native town of Kirkaldy, and remained there for ten years. All the attempts of his friends in Edinburgh to draw him thither were vain; and from a kind and lively letter of Mr. Hume upon the subject, complaining that though within sight of him on the opposite side of the Frith of Forth, he could not have speech of him, it appears that no one was aware of the occupations in which those years were passed. At length, early in 1776, the mystery was explained by the appearance of his great work—the

'Inquiry into the Nature and Causes of the Wealth of Nations;' at first published in two quarto volumes, and afterwards in three octavo. Mr. Hume lived to see it, having died in the autumn of the same year; and he immediately wrote to express his high sense of its merits, specifying accurately the chief points of its excellence—"depth, solidity, acuteness, with much illustration of curious facts;" to which, if we add the extraordinary merit of showing in what way economical reasoning should be conducted—with a constant recourse to the general principles of human nature, and a distrust of all empirical details, though with a due attention to ascertained facts of a general and not a topical or accidental class—we sum up the great services rendered to science, as well as to government and legislation generally, by this celebrated work. In regard to the originality of its views, it ranks, perhaps, less highly, as most of its doctrines had been broached by the Italian writers and the French economists, and still more by Mr. Hume in his 'Political Discourses.' We must, however, bear in mind, that Dr. Smith had begun to lecture upon those subjects as early as the year after he settled in Glasgow, that is, in 1752, when Mr. Hume's Essays were published; and in 1755 he drew up a paper containing an abstract of his doctrines, which he asserts that he taught the winter before he left Edinburgh, and consequently in 1750. As far as regards himself, therefore, we may affirm that those opinions were not borrowed from any others, but were the results of his own speculations.*

* He says that they are contained in lectures which he had composed and had caused to be written in the hand of an amanuensis, who left his service in 1749 or the beginning of 1750.

The two years immediately following the publication of his work he passed chiefly in London, and lived in the society of the persons most distinguished for political and for literary eminence. His appointment as Commissioner of the Customs was wholly without his solicitation, or, indeed, knowledge, until the offer was made. In 1762 the University of Glasgow had conferred upon him the degree of Doctor of Laws, and in 1788 he was chosen their Rector—an office in the gift of the students, voting by four divisions or nations. His letter of thanks on this occurrence shows how extremely gratified he was with the honour.

Upon his appointment to the Customs he settled in Edinburgh, where his venerable parent lived with him till her death in 1784, as well as his cousin, Miss Douglas, who died in 1788. These two losses sorely afflicted his gentle and affectionate heart, for he was tenderly attached to both his relations, and had never known domestic comforts but in their society. He lived hospitably, and saw much of his friends—the great lights of Scottish society in those days: Dr. Black, Dr. Hutton, Dr. Robertson, Dr. Cullen, were his chosen companions; and he took much pleasure in superintending the education of his kinsman, Mr. Douglas, afterwards Lord Strathenry, to whom he left his choice library (the only thing, as he used to say, in which he was a fop), as well as that portion of his papers which he did not destroy.

But now, although his income exceeded his wants, his far more precious time was no longer his own. The trivial but incessant duties of his office exhausted his spirits, and distracted, though they could not fix his attention. For several years he ceased to cultivate letters or

science, or only gave his attention to them, as matters of amusement, and as food for conversation. He had, indeed, in the two portions of his lectures of which nothing had been published, the rich materials of works in the very highest degree interesting and important. But when we reflect that ten years had been required, and those years passed in seclusion, to systematize, to arrange, and to compose the work into which were moulded the economical part of his lectures, we may well believe that he now, as his age declined and his infirmities increased, shrunk from performing the same office to the other portions of the lectures, when the avocations of his public duty gave a perpetual interruption to his studies. It is remarkable, too, how little, with all his great practice, he ever acquired the art of composition. He told Mr. Stewart a short time before his death, that "after all his practice, he composed as slowly and with as great difficulty as at first." Hence it naturally surprises us to learn that he never wrote, but walking about the room, dictated to an amanuensis, from which we must conclude that before he began, he had well considered the language as well as the matter, and spoke to the writer, as it were, a prepared speech.*

He began to feel the approach of age at a somewhat early period, notwithstanding the temperate, calm, and

* Mr. Stewart adds, that Dr. Smith mentioned Mr. Hume's facility of writing as a contrast to his own, stating "that the last vols. of his History were printed from the original copy, with a few marginal corrections." I have shown in his life, that this could not have been the case; for I have proved, both from Mr. Hume's own MSS., and from his account of his difficulty in writing, that Dr. Smith's impression was erroneous.

equable life which he had ever had; nor had he reached three score when he was sensible, not that his faculties, but that his bodily strength and spirits were somewhat impaired. The domestic losses to which I have adverted left him solitary and helpless; and though he bore them with an equal mind, as became a great philosopher, his health gradually declined. The immediate cause of his death, which happened in July, 1790, was a chronic obstruction in the bowels, under which he lingered for a considerable time and suffered great pain; but he bore it with perfect resignation. When he left Edinburgh in 1773, on a journey to London, the object of which has not been explained, but which gave him the expectation of a long absence from Scotland, he wrote a letter to Mr. Hume, intrusting him with the charge of his papers, and intimating that, except the 'Speculative History of Astronomy,' he desired all his other writings to be destroyed, stating that they were contained in eighteen folio paper books, which were not even to be examined before destroying them. Dr. Hutton's account of what afterwards passed, coincided with this intention and must be subjoined, as it is extremely interesting. "When he became weak and saw the approaching end of his life, he spoke to his friends again upon the subject of his papers. They entreated him to make his mind easy, as he might depend upon their fulfilling his desire. He was then satisfied, but some days afterwards finding his anxiety not entirely removed, he begged one of them to destroy the volumes immediately. This accordingly was done, and his mind was so much relieved that he was able to receive his friends in the evening with his usual complacency. They had been in use to sup with him

every Sunday, and that evening there was a pretty numerous society of them. Dr. Smith not being able to sit up with them as usual, retired to bed before supper, and as he went away, took leave of his friends by saying, 'I believe we must adjourn this meeting to some other place!'" He died a very few days afterwards. Mr. Riddel, an intimate friend of Dr. Smith's, who was present at one of the conversations on the subject of the manuscripts, mentioned to Mr. Stewart, in addition to Dr. Hutton's note, that he "regretted he had done so little, adding, 'I meant to have done more, and there are materials in my papers of which I could have made a great deal, but that is now out of the question.'"

In the latter period of his life, and while suffering under the illness which proved fatal, he made some important additions to his 'Theory of Moral Sentiments.' Of these, some of the most eloquent passages of his whole writings, Mr. Stewart has beautifully said, "that the moral and serious strain which prevails through those additions, when connected with the circumstances of his declining health, adds a peculiar charm to his pathetic eloquence, and communicates a new interest, if possible, to those sublime truths, which in the academical retreat of his youth awakened the first ardours of his genius, and on which the last efforts of his mind reposed."

In 1795, a volume of posthumous works was published, consisting of four Essays. The first is a portion of the extensive work which he had begun, on the principles which lead to and direct philosophical inquiries; these he illustrates from the history of astronomy, of ancient physics, and ancient logic and metaphysics. His second is an Essay upon the imitative arts; the third on certain

affinities of English and Italian verse, and the fourth on the external senses. The only part of this work that appears to be nearly finished, is the 'History of Astronomy;' but the whole of the Essays are replete with profound and ingenious views, and show an extensive and accurate acquaintance with all the branches of inductive science.

The true picture of a great author's intellectual character is presented by his writings; and of the depth, the comprehensiveness, the general accuracy of his views, on the various subjects to which his mind was bent, there can be but one opinion. His understanding was enlarged, and it was versatile; his sagacity, when he applied himself deliberately to inquiry or to discussion, was unerring; his information was extensive and correct; his fancy was rich and various; his taste, formed upon the purest models of antiquity, was simple and chaste.

His integrity was unimpeachable, and the warmth of his affections knew no chill, even when the langour of age, and the weight of ill-health, was upon him; his nature was kindly in the greatest degree, and his benevolence was extensive, leading him to indulge in acts of private charity, pushed beyond his means, and concealed with the most scrupulous delicacy towards its objects. Stern votaries of religion have complained of his deficiencies in piety, chiefly because of his letter upon the death of his old and intimate friend Mr. Hume; but no one can read the frequent and warm allusions with which his works abound to the moral government of the world, to reliance upon the all-wise Disposer, to the hopes of a future state, and not be convinced that his mind was deeply sensible to devout impressions. Nay, even as to his estimate of Mr. Hume's character, we are clearly

intitled to conclude that he regarded his friend as an exception to the rule that religion has a powerful and salutary influence on morals, because he has most forcibly stated his opinion, that whenever the principles of religion which are natural to it are not perverted or corrupted "the world justly places a double confidence in the rectitude of the religious man's behaviour."—('Mor. Sent.,' I., 427.) Surely, Dr. Johnson himself could desire no stronger testimony to religion, no more severe condemnation of infidelity.*

In his simple manners, and the easy flow of his conversation, wholly without effort, often with little reflection, the carelessness of his nature often appeared; and the mistakes which he would occasionally fall into, by giving immediate vent to what occurred to him on a first impression, or a view of the subject from a single point, sometimes would furnish subject of merriment to his friends.† It was, probably, from the same simplicity and earnestness that he was apt in conversation to lay down principles and descant upon topics somewhat in the way of a lecture; but no one found this tiresome, all feeling that it was owing to his mind being in the matter, and to his simple and unsophisticated nature. Never was there anything about him in the least like a desire to engross the conversation. On the contrary,

* See 'Theory of Moral Sentiments,' Part. III, chap. i., ii., and v.

† In some few instances, these traces of imperfect judgment have found a place in his works. His giving Gray the preference to almost all poets, "as equalling Milton in sublimity and Pope in eloquence and harmony," is the more singular, because the best by far of Gray's poems, the Elegy, makes no pretension to sublimity at all.—('Theory of Moral Sentiments,' I. 311.)

he could sit a silent spectator of other men's gaiety, which he was perceived to enjoy even when he took no part in what excited it.

Somewhat akin to these peculiarities was his habitual absence, not only muttering in company as unconscious of their presence, but even unaware of the obstructions he might encounter while walking in the streets. One that knew him, which the sufferer did not, was a good deal amused to hear a poor old woman, whose stall he had overturned while he moved on with his hands behind his back and his head in the air, exclaim in some anger, "doating brute!"* Another was amused at the remark of an old gardener, near Kirkaldy, who only knew him by having answered his questions, somewhat incoherently put in his walks, when the 'Wealth of Nations' appeared, and he found who was its author: "Weel a weel!" quoth he, "they tell me that lad Adam Smith has put out a great book. I am sure it would be long before I would think of doing a thing of the kind." It is related by old people at Edinburgh, that while he moved through the Fishmarket in his accustomed attitude, and as if wholly unconscious of his own existence or that of others, a female of the trade exclaimed, taking him for an idiot broken loose, "Heigh! Sirs, to let the like of him be about! And yet he's weel eneugh put on" (dressed). It was often so too in society. Once during dinner at Dalkeith he broke out in a long lecture on some political matters of the day, and was bestowing a variety of severe epithets on a statesman, when he suddenly perceived his nearest rela-

* The Scotch word is "*doited*" or "*donnert*," and expresses one whose faculties are entirely gone, if ever they existed.

tive sitting opposite, and stopt; but he was heard to go muttering, "Deil care, deil care, it's all true."

The 'Theory of Moral Sentiments,' although it be not the work by which Dr. Smith is best known, and for which he is most renowned, is yet a performance of the highest merit. The system has not, indeed, been approved by the philosophical world, and it seems liable to insuperable objections when considered even with an ordinary degree of attention, objections which never could have escaped the acuteness of its author but for the veil so easily drawn over an inquirer's eyes when directed to the weak points of his own supposed discovery. The principle or property in our nature which leads us to sympathise or feel with the feelings of others, to be pleased when our feelings are in accordance with theirs, to be displeased when they are in discord, must be on all hands admitted to exist; and thence may fairly be deduced the inference, that our approval of another's conduct is affected by the consciousness of this accord of our feelings, and our self-approval by the expectation of his feelings according with our own. But when we resolve our whole approval of his conduct and of our own into this sympathy, we evidently assume two things: first, that the accord is a sufficient ground of approbation; and, secondly, that this approbation is not independent but relative, or reflected, and rests upon either the feelings of others and upon our own speculations respecting those feelings, or upon our sympathy with those feelings, or upon both the one and the other. Now, the first of these things involves a *petitio principii*,

and the second involves both a *petitio principii* and a dangerous doctrine. It cannot surely be doubted that a sense of right may exist in the mind, a disposition to pronounce a thing fit and proper, innocent or praiseworthy, unfit or unbecoming, guilty or blameworthy, without the least regard either to the feelings or the judgments of other men. It is quite certain, that, in point of fact, we feel this sentiment of approbation or disapprobation without being in the least degree sensible of making any reference to other men's feelings, and no sympathy with them is interposed between our own sentence of approval or disapproval and its object. But it is enough to say, and it seems to answer the theory at once, that even if our sympathy were admitted to be the foundation of our approval, our inability to sympathise the ground of our disapproval, this in no way explains why we should approve because of the accord and disapprove because of the discord.

The theory, with the utmost concession that can be made to it as to the ground-work, leaves the superstructure still defective, and defective in the same degree in which the 'Theory of Utility' is defective; we are still left to seek for a reason why approval follows the perception of corresponding feelings in the one case, of general utility in the other. Dr. Paley is so sensible of this, that after resolving all questions of morals into questions of utility, he is obliged to call in the Divine Will as the ground of our doing or approving that which is found to be generally useful. Other reasoners on the same side of the question pass over the defect of their system altogether, while some try the question by assuming that we must desire or approve that which is useful;

while a third class, much more consistently, consider that the approving of what is generally useful, and disapproving of what is generally hurtful, arises from the exercise of an inherent faculty or moral sense, an innate principle or property in our nature, irresistible and universal. The like defect is imputable to Dr. Smith's theory, and is only to be supplied either by Dr. Paley's method of reasoning, or by the last supposition to which I have referred. But all this concedes a great deal more than is due to the 'Theory of Sympathy,' and assumes it to stand on as good a foundation as that of 'Utility.' Now one consideration, which has in part been anticipated, shows that such is not the case. We may sympathise with another, that is, we may feel that in his position our own inclinations would be exactly the same with those under which he appears to be acting, and yet we may equally feel that we should deserve blame, and not approval. Why? "Because," says Dr. Smith, "we take into the account also that others, that is to say, men in general, not under the influence of excitement to disturb their feelings or their judgments, will disapprove." But why should they? If they are to place themselves, as we are desired to do, in the situation of the propositus, of him whose conduct is the subject of consideration, they must each of them feel, as we do ourselves, that in his situation they would do as he is doing, or, at least, would be inclined so to do. Therefore, this appeal to others in general, this calling in the general sense to correct the individual, can have no effect upon the hypothesis; it can only exert any influence, or apply any correction, upon some other hypothesis. It appears, therefore, that in every view the theory is unsound.

At the same time, nothing can be more clear than the very high merit and the very great value of the work in which that theory is explained, illustrated, and applied.

In the *first* place, it is the first modern systematic work on ethics which exhausts the subject by going over its whole range, both as regards the principles of our nature, whereby we distinguish moral thoughts, words, and actions, and as regards the grounds of our approving or disapproving of these. The writings of his predecessors, particularly, as we have seen, those of Butler, Hutcheson, and Hume, had done much, but they had left much to be done in forming a comprehensive and general system.

Secondly. The important operation of sympathy was never before explained and traced, its effects upon our feelings and our judgments, its sudden and even instantaneous action, its direct and indirect, and immediate and reflex workings; all the modifications which it undergoes. There remains a great body of important truth, even concerning sympathy, in the work, after we shall have deducted the portion of it which cannot be supported. Sympathy is a great agent in our moral system, though it may not be allowed either to be the only one, or one of unlimited power; and its agency was never before so fully perceived, or so clearly traced.

Thirdly. In a system of ethics the truth or falsehood of the fundamental principle is not, as in a physical or mathematical speculation, the only point to be regarded, and upon our determination respecting which the whole value of the theory depends. The exhibiting an extensive and connected view of feelings and judgments, of moral qualities and sentiments, referring the whole to one prin-

ciple of convenient arrangement, and tracing their connexion with each other, as well as with the common source, may be of great importance, because of great use, although the arrangement itself is defective, and the pivot on which it hinges insufficient to bear it. This merit belongs in a very eminent degree to Dr. Smith's theory, which brings together a much larger collection of moral facts, and exhibits a much greater variety of moral arguments than any other ethical treatise in ancient or modern times.

Fourthly. There are whole compartments of the work which are of inestimable value, without any regard to the theory, and independent of those portions more connected with it, of which we have admitted the value. Thus the copious and accurate and luminous account of the other systems of morals, forming the seventh part, which occupies a fourth of the book, would have been a valuable work detached from the rest. To relish it we do not require the striking contrast of perusing such works as the dry and uninteresting and indistinct histories of Enfield and Stanley. So the third section of the first part, on the influence of success, or the event, upon our feelings and judgments of actions, what the author terms the influence of fortune, has great originality, and is at once judicious and profound. The like may be said of the fifth part, which treats of the influence of custom and fashion.

Lastly. The admirable felicity, and the inexhaustible variety of the illustrations in which the work everywhere abounds, sheds a new and a strong light upon all the most important principles of human nature; and affords an explanation of many things which are wholly inde-

pendent of any theory whatever, and which deserves to be known and understood, whatever theory may obtain our assent.

The beauty of the illustrations, and the eloquence of the diction, are indeed a great merit of this work. That the author living nearly twenty years in a College, or in a small country town, and with his habits, both of study and mental absence or distraction, should have all the while been so curious an observer even of minute particulars in conduct, manners, habits, is exceedingly singular, and seems to justify a conjecture of Mr. Stewart, that he often gave a partial attention to what was passing around him, and was afterwards able to recall it by an effort of recollection, as if he had given his whole mind to it at the time. His style, indeed, is peculiarly good; his diction is always appropriate and expressive, quite natural, often picturesque, even racy and idiomatic beyond what men are apt to acquire who gather their language rather from books than from habitually hearing it spoken by the natives. Johnson, though an Englishman, has filled his 'Rambler' with very inferior English, in comparison of such passages as these: "We seldom resent our friends being at enmity with our friends, though upon that account we may sometimes affect to make an awkward quarrel with them; but we quarrel with them in good earnest, if they live in friendship with our enemies." (Vol. I. p. 20.) "Smaller offences are always better neglected; nor is there any thing more despicable than that froward and captious humour which takes fire upon every slight occasion of quarrel." (I. 86.)

Look through the heavy and wearying pages of the great English moralist's most admired ethical writings,

his 'Rambler,' his 'Idler,' his 'Rasselas,' where will you find such a picture of the progress of an upstart, which, however, is written in a much more balanced and sententious style than Dr. Smith generally adopts. "In a little time he generally leaves all his own friends behind him, some of the meanest of them excepted, who may perhaps condescend to become his dependants; nor does he always acquire any new ones. The pride of his new connections is as much affected at finding him their equal, as that of his old ones had been by his becoming their superior: and it requires the most obstinate and persevering modesty to atone for this mortification to either. He generally grows weary too soon, and is provoked by the sullen and suspicious pride of the one, and by the saucy contempt of the other, to treat the first with neglect and the second with petulance, till at last he grows habitually insolent, and forfeits the esteem of all." Then he concludes beautifully and truly: "He is happiest who advances more gradually to greatness; whom the public destines to every step of his preferment long before he arrives at it; in whom, upon that account, when it comes, it can excite no extravagant joy, and with regard to whom it cannot reasonably create either any jealousy in those he overtakes, or any envy in those he leaves behind." (Vol. I. p. 97.)

Here, too, is a noble passage of indignant eloquence, which I hope will not be deemed to carry with it any offence to the remote descendants of those assailed; but if it should, it can only be from a consciousness of the stain enduring, and that stain can be easily wiped out, so that the memory of the past shall redound only to the glory of the present generation. He is speaking of the

North American Indians. "The same contempt of death and torture prevails among all the savage nations. There is not a negro from the coast of Africa who does not in this respect possess a magnanimity which the soul of his sordid master is too often scarce capable of conceiving. Fortune never exerted more cruelly her empire on mankind, than when she subjected this nation of heroes to the refuse of the jails of Europe, to wretches who possess the virtues neither of the countries which they come from nor of those which they go to, and whose levity, brutality, and baseness, so justly expose them to the contempt of the vanquished." (Vol. II. p. 37.)

How well has he painted the man of system, and how many features of this portrait have we recognized in Mr. Bentham, and others of our day!—"He is apt to be very wise in his own conceit, and is often so enamoured with the supposed beauty of his own ideal plan of government, that he cannot suffer the smallest deviation from any part of it. He goes on to establish it completely, in all its parts, without any regard either to the great interests or to the strong prejudices which may oppose it. He seems to imagine that he can arrange the different members of a great society with as much ease as the hand arranges the different pieces upon a chess-board. He does not consider that the pieces upon the chess-board have no other principle of motion beside that which the hand impresses upon them; but that in the great chess-board of human society, every single piece has a principle of action of its own, altogether different from that which the legislature might choose to impress upon it. If these two principles coincide and act in the same direction, the game of human society will go on

easily and harmoniously, and is very likely to be happy and successful. If they are opposite or different, the game will go on miserably, and the society must be at all times in the highest degree of disorder."—"For a man to insist upon establishing, and upon establishing all at once, and in spite of all opposition, anything which his own idea of policy and law may seem to require, must often be the highest degree of arrogance. It is to erect his own judgment into the supreme standard of right and wrong. It is to fancy himself the only wise and worthy man in the commonwealth, that his fellow creatures should accommodate themselves to him, and not he to them." (Vol. II. p. 110.)

There are scattered through this and Dr. Smith's other work abundant indications of the scorn in which he held faction and the spirit it engenders; but I am far from being averse to cite passages which may be supposed to reflect on my own policy and conduct, while a minister or a party chief, or to confine my quotations to those opinions with which I might be supposed more to agree. The following passage must be fairly admitted to contain much truth, though not stated in terms sufficiently measured: — "The leaders of the discontented party seldom fail to hold out some plausible plan of reformation, which they predict will not only remove the inconveniences, and relieve the distresses immediately complained of, but will prevent in all time coming any return of the like inconveniences and distresses. They often propose on this account to remodel the constitution, and to alter in some of its most essential parts that system of government under which the subjects of a great empire have enjoyed perhaps peace, security, and even glory,

during the course of several centuries together. The great body of the party are commonly intoxicated with the imaginary beauty of this ideal system, of which they have no experience but which has been presented to them in all the most dazzling colours in which the eloquence of their leaders could display it. The leaders themselves, though they may originally have meant nothing but their own aggrandisement, become many of them in time the dupes of their own sophistry, and are as eager for this great reformation as the weakest and foolishest of their followers. Even though the leaders should have preserved their own heads, as indeed they commonly do, free from this fanaticism, yet they dare not always disappoint the expectations of their followers; but are often obliged, though contrary to their principles and their conscience, to act as if they were under the common delusion." No one can doubt the truth of the conclusion to which his account of reforming schemes leads him; it is proved by constant experience, which also shows, though he leaves this out of his view, that they who refuse all reform often are the cause of excessive and perilous innovation:—"The violence of the party refusing all palliations, all temperaments, all reasonable accommodations, by requiring too much, frequently obtains nothing; and those inconveniences and distresses which with a little moderation might in a great measure have been removed and relieved, are left altogether without the hope of remedy." (Vol. II. p. 107.)

Such is the 'Theory of Moral Sentiments.' The great reputation, however, of Dr. Smith, and especially his European reputation, is founded upon the 'Wealth of Nations.' We have seen how the principles of a more

sound, liberal, and rational policy in all that regards commerce and finance, had been gradually taking the place of the old and narrow views upon which all countries regulated their economical systems, and we have found the improvement begun as early as the seventeenth century. Towards the end of that, and in the earlier part of the following, the alarms of the different states which form the great European Commonwealth were so much excited by the ambition of Louis XIV., that the only subject which either interested statesmen or speculative inquirers related to questions of military and foreign policy. But the regency of a most able prince and wise ruler, profligate though his private life might be, succeeded that splendid and mischievous reign, and the greatest, indeed the only, error of the Duke of Orleans, his confidence in a clever and unprincipled projector, however hurtful to his country for the moment, yet produced no permanent mischief, while it rather tended to encourage speculations connected with money and trade and taxation. Accordingly, both in France and Italy, those subjects occupied the attention of learned men during the first half of the eighteenth century, and we have seen how great a progress was made between 1720 and 1770 in establishing the sound principles of which a considerable portion had been anticipated nearly a hundred years before. In England, Mr. Hume had contributed more largely to the science than all the other inquirers who handled these important subjects. In France the Economists had reduced them to a system, though they mingled them with important errors, and enveloped them in a style exceedingly repulsive, and not well calculated to instruct even the few readers whom it suffered the importance of

the subject matter to attract. But it remained to give a more ample exposition of the whole subject; to explain and to illustrate all the fundamental principles, many of which had been left either assumed or ill defined, and certainly not clearly laid down nor exhibited in their connexion with the other parts of the inquiry; to purge the theory of the new errors which had replaced those exploded; to expound the doctrines in a more catholic and less sectarian spirit than the followers of Quesnay displayed, and in a less detached and occasional manner than necessarily prevailed in the Essays of Hume, though from his admirably generalizing mind no series of separate discourses ever moulded themselves more readily into a system. This service of inestimable value Dr. Smith's great work rendered to science; and it likewise contained many speculations, and many deductions of fact upon the details of economical inquiry, never before exhibited by any of his predecessors. It had also the merit of a most clear and simple style, with a copiousness of illustration, whether from facts or from imagination, attained by no other writer but Mr. Hume, unsurpassed even by him, and which might well be expected from the author of the 'Theory of Moral Sentiments.'

ANALYTICAL VIEW OF THE WEALTH OF NATIONS.

I. Labour is the source of all human enjoyment; it may be even reckoned the source of all possession, because not even the property in severalty of the soil can be obtained, without some exertion to acquire and secure the possession; while labour is also required to obtain possession of its minerals, or of the produce which grows uncultivated, or the animals which are reared wild. All

wealth, therefore, all objects of necessary use, of convenience, of enjoyment, are either created or fashioned, or in some way obtained, by human labour. The first inquiry then, which presents itself, relates to the powers of labour; the next to the distribution of its produce. These two subjects are treated in the *first* book of the 'Wealth of Nations,' in *eleven* chapters, to which is added a kind of appendix, called by the author a 'Digression, upon Money Prices,' or as he terms it, "the variations in the value of silver, and the variations in the real prices of commodities." The unskilful and even illogical aspect of this division is manifest; for under the head of labour, are comprehended the subjects of profit and rent as well as wages. But subject to this objection against the arrangement, and to the still more material objection which may be urged against one portion of the doctrine, the *first* book is of very great value, and unfolds at length the fundamental principles of economical science.

i. The first sub-division relating to the powers of labour, embraces the subject of its division and its price; the former is treated of in the *three* first chapters; the latter in the *fifth* and *eighth*, but also occasionally in the *sixth*, *seventh* and *tenth*.

1. The division of labour, both increases its productive powers, and increases the excellence of its produce. Men will work more when their attention is confined to a single operation, than when it is distracted by several, because time is saved by not passing from one thing to another, and because the power or skill of the workman is increased when he has but one thing to occupy him. But independent of his increased skill making him do more work, it makes him perform better the work which

he does, and hence both the quantity is augmented, and the quality is improved of what his labour produces. The origin of this division is the principle which makes men exchange or barter their different possessions, and among these their different powers. Either one differs from another in his capacity, or each by confining his attention to a single pursuit, acquires a peculiar capacity for that pursuit. In either case, they who are differently qualified will employ themselves differently, and one will exchange the produce of his labour with the other for the produce of his; or, which is the same thing, each will work for the other, and both will thus be better served. The extent of the market will always fix a limit to the division of labour, which can have no great range in confined situations; but where it is much divided, a vast multitude of workmen will concur in producing a single article of exchange. Dr. Smith mentions the case of eighteen persons being employed in making a pin, and being thus enabled to make 86,000 pins in a day, or 4,800 each person; whereas had they worked alone, perhaps they might not have been able to make one apiece. He adds, that the meanest individual of a civilized country uses, or commands, in some small portion at least, the labour of many thousands, and is thus better accommodated than a savage chief, who wholly possesses 10,000 slaves, and has their lives and liberties at his disposal. Among the beneficial effects, however, of the division of labour, one is to save labour by different contrivances, and especially by the invention of machinery. This in many instances, though by no means in all, improves the quality of the article; in all cases, it increases its quantity. It therefore greatly augments the power of labour.

2. Labour is the measure of the exchangeable value of all commodities, because the possession of all is governed by labour; and in the case of exchanging one against another, the produce of the labour by which both were obtained is mutually given and received. But it is easier to compare two commodities with each other than either of them with labour as their common measure; not to mention that it is not easy to compare the different kinds of labour, as hard and easy working, skilful and unskilful, with one another. Hence, prices are generally estimated by the proportion which the commodities bear to one another. Labour is thus estimated as well as other commodities, in commodities, and its natural wages are the whole of its produce. But as each labourer seeks for employment, and as each employer is desirous of giving as little for labour as he can, therefore the competition of workmen for work enables the employer to obtain it at much less than the whole produce. When there is a superabundance of workmen and more hands than are wanted, the competition of workmen lowers their wages. When there is a scarcity of workmen and more work than hands to do it, the competition of employers raises wages. But, in all cases, except where a man labours for himself, less than the produce of the labour is paid to reward it, and the difference belongs to the employers.

It is most material to observe, *first*, that there is a tendency in the competition of workmen to lower their wages; *secondly*, that there is a point below which wages cannot descend. Both these positions are founded on this: that the labourers are, generally speaking, persons wholly dependent on their labour. Therefore, in the *first* place,

they cannot keep their labour out of the market when the demand for it is slack, as a man of property will keep his goods back when their price is low; and, in the *second* place, the labourer would cease to work if he could not earn enough to support himself in the manner in which persons of the lower order usually live, with a surplus for supporting his family, without which his race would be extinct. Hence there is a necessary connexion between the wages of labour and the prices of the necessaries of life; and though the demand for work, compared with its supply, must regulate wages within certain limits, that is, between the lowest point to which they can fall and the highest to which they can rise, the latter point depends upon the demand, the former upon the cost of maintaining the labourer and his family. This will not vary with each variation of the prices of necessaries; indeed, a scarcity, by throwing hands out of employment, may even lower wages instead of raising them. But upon the average price of necessaries the amount of wages certainly does and must depend; for, if the average price is high, some proportion must be kept by wages, else the workman would either perish or emigrate, and so labour would leave the market, until its recompense became equal to the cost of living; and again, if the average is low, the competition of workmen and the increase of their numbers by the progress of population will bring down the price, that is the wages, to the level of prices; so that the average rate of wages never can be much beyond the cost of living, that is, it must fall towards the average price of the necessaries of life.

We may here stop to observe how soon we are brought, by discussing speculations on the foundations of labour and

value, or real prices, to the very practical question of the Corn Laws. They who are against all legislative measures, whether for revenue or protection, that can obstruct the importation of corn, contend for the most part that their plan will lower the price of bread, though some of the most distinguished advocates of free trade in corn deny that it could produce any such effect. For my own part, I can hardly doubt, that it might in some, though no great degree, lower the average price of grain and of bread. But if it produced this effect, undoubtedly its tendency would be to lower the average rate of wages. This I say, would be its tendency; but that tendency would be counteracted by the operation of two causes, both the increased amount of the capital employed in manufacturing labour would tend to restore the rate of wages, and the extension of foreign commerce, operating upon domestic industry in all its branches, would produce the same effect; not to mention that the money rate of wages might fall, and the real rate remain the same, in consequence of living having become cheaper. I must, however, admit that the interest of the working classes in this question is not so manifest, though we should not wholly neglect it, as that of the capitalist. The main reason why the labourer has no very material interest in it, is this: In almost every state of society, indeed in every state, except that of a new and unpeopled country, the tendency above explained of the labourer to cause a glut of his only merchandise, his labour, in the market, is sure to bring down his profits, that is, his wages, to the lowest or nearly the lowest amount on which he can subsist. No change of this kind, therefore, in the national policy appears likely to effect any permanent improvement in his lot.

Hitherto we have been treating only of labour, and of matters immediately and directly connected with it; but in the remaining six chapters of the first book, Dr. Smith considers other subjects, namely, capital and its profits, or the revenue it yields, and also the manner in which all exchanges are effected. As every thing is the produce of labour, as "all is the gift of industry," there may be some ground for thus reducing all within the bounds of the same book; nevertheless, these other subjects would have been more logically kept distinct from labour, inasmuch as the five chapters which we have analysed, relate to labour alone, and to labour of every kind, and labour forms the only subject of their discussion; whereas the remaining six relate to other things as well as labour, and the greater part of these discussions refer not to labour at all.

ii. The second subdivision of the book relates to the manner of effecting exchanges; and this introduces, first, the subject of money; and great part of the *fifth* chapter treats of the money price of commodities, as contradistinguished from their real price. It includes, secondly, the subject of prices. The *sixth* and *seventh* chapters treat of this.

1. The great inconvenience of traffic by barter, which made it impossible for one person to exchange any commodity with another, unless each wanted exactly the same quantity which the other had to give,—equally impossible to obtain what was wanted in one place, without sending what was redundant to the other place,—and equally impossible to obtain what was wanted at one time from a person who did not want the thing given for it at the same time,—set men upon making two inventions,

the one of falling upon some commodity generally desirable, produced in moderate quantities, and capable of being easily and exactly divided into portions as well as easily transported and easily preserved, which might be exchanged for all other commodities, and thus become, as it were, a material or tangible measure of their exchangeable value, as well as an easy medium of carrying on all exchanges; the other of agreeing, that when any bargain was made for the exchange of commodities, he who did not immediately want to have the article delivered to which he was entitled, might receive some document ascertaining his claim to receive it when he wished, and he who did not wish to part with it, but desired to have the equivalent commodity immediately, might find the document binding him to pay something for the delay, in case the other party wished it:—the former of these inventions is money; the latter is credit, or paper currency. In some rude countries shells have been used for money; in others, leather; almost universally, however, the metals have been so employed, and chiefly those which from their beauty and their scarcity, are the most valuable; gold, silver, and copper, though sometimes iron has been so used. Bills of exchange and promissory notes have greatly facilitated the operations of commerce, by enabling debts to be transferred, so that there should be no necessity of employing either goods or money to pay more than the net balance due from one given country, or from one district of the same country to another, upon the whole mutual dealings of both countries or both districts; and also by enabling credit to do the office of coin, and thus to economize the use of the precious metals. The *fifth* chapter enters at large into the sub-

ject of the coinage, and the variations, both in the actual amount of gold and silver at different times existing in the country, and in the real value of the precious metals themselves, from the varying quantities yielded by the mines of the world, and somewhat also from the variations in the demand for them; these metals being like all other commodities, liable to fluctuation from the supply and the demand varying, and their value being measured by the goods or the labour they can purchase.

2. In a rude or perfectly natural state of society, when each person enjoys the whole produce of his labour, exchange would be regulated by the time of labour, the hardness of the work, the perilous or disagreeable nature of the occupation, the skill required to carry it on; but as society advances, when men are set to work for others and paid by their employers, there goes a part of the produce to the employer, and the consideration in the exchange or sale of the produce consists of two parts—the wages of the workman, and the profits of his employer. When the labour has been employed upon land by those who are not the owners, they must pay to the owners something for the use of it; and this is called rent, which Dr. Smith considers as entering into the price of produce, together with wages and profits, that is, the time of the labourers and the profits of the farmer; so that he considers wages alone, or wages and profits of stock alone, or wages, profits, and rent together, as entering into and composing the price of all commodities. He also considers all prices as of two kinds—the natural, and the actual or market price; the former being that which replaces the wages paid for producing the article, with the profits of the employer, and in cases of agricul-

tural produce, with the rent of the landowner also ;* the other, the price as regulated by the proportion between the supply and the demand in the market, where it is exposed for sale or for barter, and which price may be either equal to, or greater, or less than the natural price.

The portion of these chapters which relates to rent is now admitted to be founded upon an erroneous view of that subject. Rent can never, properly speaking, form any part of price. It has been shown, first by Dr. Anderson in 1776, afterwards by Sir E. West and Mr. Malthus in 1812 and 14, ignorant of Dr. Anderson's discovery, that rent arises from the bringing of inferior lands into cultivation, which makes it the farmer's interest to pay a consideration for the use of the better land first cultivated ; so that, instead of the rent affecting the price of corn, the price of corn affects the rent; and that land is let at a rent because corn cannot be grown any longer at the same price, and not that corn is sold at the higher price because land yields a rent. The price of corn again is always regulated by the application of capital to inferior soils. It never can materially rise above or fall materially below the expense required for raising and bringing to market the corn produced on the worst soils actually cultivated. This is perhaps the most considerable step that has been made in political economy since the 'Wealth of Nations' was published.

iii. The profits of stock are the subject of the third

* It is proper to observe, that the peculiarity of rent was not wholly passed over by Dr. Smith. He expressly says, that while high or low wages and profits are the cause of high or low prices, high or low prices are the causes and not the effects of high or low rents. (Book I., chap. xi., Introduction.)

sub-division. These vary with the wealth and property of the community as wages do, but in a very different manner; for the increase of capital, which tends to raise the rate of wages, lowers by competition the rate of profit, as indeed the rise of wages does also. The progress of the community, however, in prosperity, has a tendency to raise both the wages of labour and the profits of stock; while a retrograde state of a country never fails to lower both profits and wages. The profit of money, or interest, follow the like rules. It depends upon the proportions of borrowers to lenders; that is, on the supply of money compared with the demand for it, and the profits made by those who borrow it to invest in trade. It depends not at all upon the mere quantity of the precious metals. The profits of stock form generally the subject of the *ninth* chapter. The *tenth* relates to the rate of wages and profits in different employments, and consists of two parts—the one treating of the inequalities arising from the nature of the employment of labour or capital, the other treating of the inequalities produced by the policy of states.

1. The inequalities of the first class affecting wages of labour are fivefold, arising severally from the disagreeable nature of the employment, the expense or difficulty of learning it, the inconstancy and precariousness of the demand, the great trust reposed in the workman or the capitalist, and the improbability of success in the work or investment; each of these disadvantages requires a certain increase of gain to the labourer, or to the capitalist, as a compensation for the disagreeableness, the education, the period of inaction, the trust, the risk of loss. Of these five circumstances two only affect the

profits of stock—the agreeableness or disagreeableness of the trade, and the scarcity or risk attending it.

2. Were industry and commerce left free, these inequalities alone could affect wages and profits; but the policy of states has added to these causes of inequality several others, which disturb the natural rate of both wages and profits much more than the circumstances already enumerated.

(1.) The laws requiring several years' apprenticeship to be served before trades can be set up, prevent the free circulation of labour both from place to place, and from one profession to another. They tend to give a monopoly to both employers and capitalists, and thus to lower the wages of labour, and raise the profits of stock. The various other restrictions imposed by corporations have a like tendency.

(2.) Institutions for encouraging one kind of industry, and giving it a power greater than it naturally would possess, have the effect of drawing more to it than would naturally resort to it, and thus, from the numbers who must fail, lower the wages of labour. Free schools and colleges are liable to this imputation, which, however, Dr. Smith admits to be much corrected by the important benefits conferred if education is thus made materially better or cheaper.

(3.) The exclusive privileges of corporations produce the same effect in obstructing the free circulation of both labour and capital from place to place, and in the same trade, which the laws of apprenticeship do in preventing the circulation of labour from place to place, and from trade to trade. The poor laws of England are shown by Dr. Smith to have the most mischievous effects on the

circulation of labour, and indeed of capital also. But these have now happily ceased thus to operate, as have in all our municipal towns, except London, the exclusive privileges of corporations.

iv. The rent of land forms the subject of the *eleventh* and last chapter of the *first* book. It is not the profit of the stock vested in land, or even of that vested in its improvement, but the portion of the produce paid to the owner for the natural powers or productiveness of the soil. This subdivision consists of three parts—produce always affording rent, produce sometimes affording rent, sometimes not, and variations in the relative value of these two kinds of produce, whether compared with each other, or with other commodities.

1. The articles necessary to the food of man always enable the land on which they are raised to yield a rent, beside both supporting the labourers by wages, and replacing the cultivator's stock with a profit. The first part of the chapter enters minutely into the prices of these articles relatively, and in comparison of money or other commodities.

2. Certain articles of clothing, as wool and the skins of wild animals, articles used in building, as timber, stone, fuel as coal, some metals, all yield rent in certain situations and certain circumstances, not in others.

3. The value of articles only occasionally yielding rent will vary with that of the produce that always yields it. Some of the precious metals are dependent not on one district, but on the market of the world, from the metals being everywhere the instrument or medium of exchange. These things are to be regarded as making their price vary, and with it the rent of the mines

As society improves the demand of the market may increase, while the produce of the mines remains the same; or the produce may increase more than the demand increases; or the produce and demand may increase together and equably. In the first case, the money price of goods will fall, and the mine become more valuable; in the second, the money price will rise, and the mine fall in value; in the third case, the money price of goods will remain stationary, and with it the value of the mine. By the value of the mine, we, of course, mean the value of the same amount of its produce in the several cases.

This leads Dr. Smith to enter at great length into the important question, how far the value of silver, the general medium of exchange in the market of the world, has varied at different periods during the four last centuries.

(1.) The first period is from 1350 to 1570, and he shows that the increased supply from the discovery of America could not have sensibly affected the value of silver during these two centuries. The progress of commerce of all kinds, internal and external, must have been the retarding cause, which prevented the influx of the additional quantity of metal from sensibly raising the money price of commodities.

(2.) From 1570 to 1640 the newly discovered mines produced their full effect in raising all the prices, and lowering the exchangeable value of silver. That effect was completed between the years 1630 and 1640. Prices had then risen to between three and four times their former rate, although the increase of commerce had increased also the demand for the metallic currency.

(3.) From 1640 to 1776 Dr. Smith does not consider that any material change has taken place in the relative value of silver and other commodities; and he examines with much particularity, and in great detail, the facts on which the prevailing suspicion rests, and traces the progress of the supply and demand from the produce of the mines on the one hand, and the advance of society on the other. He also has occasion to show how groundless are the notions of those who regard the precious metals as constituting wealth,—that is all wealth,—when they are but a commodity valuable for use or for ornament, but still more valuable for aiding the commerce of the world as an indispensable medium of exchange.

II. The subject of the second book is stock—its nature, accumulation and employment; and it consists of five several subdivisions—the distribution of stock, the nature and use of money, the profitable employment of stock by its owners, its profitable employment by others on loan, and the various employments of stock. Each subdivision is considered in one of the five chapters into which the book is distributed.

i. The stock which any one possesses is of two kinds —that which he retains for his support, or which he has exchanged for articles of present use, and this remains in his possession, or which he takes from his revenue arising from the other portions of his stock: this is the second kind, and is used in obtaining a profit by its employment. This second kind is commonly called capital, which is of two kinds—fixed and circulating; the former (fixed) consisting of capital vested in land, or tools, or machinery, or manufactures, or shipping, which yield profit without being exchanged or parted with; the latter

(circulating) being vested in goods which, to yield a profit, must be sold or exchanged. The stock of the community consists of the same two subdivisions—stock used for support, and capital or stock employed at a profit; and the national capital in the same way is either fixed,—being of four kinds—machines or instruments, buildings used for profit, improvements in land, acquired talents, useful and profitable,—or circulating, likewise of four kinds—currency, provisions in the hands of the raisers of them, unmanufactured materials of articles of consumption, and manufactured articles of consumption. But the circulating capital of the community differs from that of an individual; because the latter is wholly excluded from his net revenue, his profits, while the former may enter into the whole trade of the community and be replaced with a profit.

ii. The only part of the circulating capital of the community which cannot be maintained without diminishing the net revenue is the money of the community. It resembles the fixed capital, *first*, in requiring like machinery an expense for keeping it up; *secondly*, in making no part of revenue; and, *thirdly*, in adding to the revenue by improvements which may economise its use. Under this head Dr. Smith discusses the principles of banking and of currency.

iii. The capital employed by the owner is distinguished by Dr. Smith into two kinds, as it puts in motion and maintains productive or unproductive labour. In this phraseology he follows the French Economists, but he differs materially from them in his classification of labour, considering as productive important branches of what they consider as unproductive. The Economists

considered the labourer employed upon land as alone productive, because he alone replaces the capital and labour with their ordinary profit, and adds also a net profit; he alone replaces the cost of his subsistence, of the seed sown by him, of the tools used by him, and of the farmer's stock or capital with a profit, and also adds a net produce, the rent of the land, thus augmenting the whole capital of the community; while the retail dealer, the manufacturer, and the merchant only receive from the produce of the soil purchased with their goods, their subsistence and the profits of their capital, but make no addition to the capital of the community. Still more, they reckon unproductive the labour of professional men and others who do not fix and realize their skill or their work in any exchangeable commodity at all. Dr. Smith shows with irresistible force of reasoning and great felicity of illustration, the great errors of this theory; and he reckons manufacturers and traders productive labourers; but then he excludes from this class all the labour of professional men. Dr. Smith's arguments on this subject are partly contained in this, the *third* chapter of the *second* book, and partly, indeed chiefly in the *ninth* chapter of the *third* book, under the head of Agricultural Systems of Political Economy. I believe it may now be safely affirmed, that his reasoning is generally admitted to be erroneous; and that as the Economists were wrong in drawing the line between productive and unproductive labour, so as to exclude that of traders and manufacturers, he is equally wrong in so drawing it as to exclude that of professional men. It is now generally admitted that the defence, the police,

the government in general of a country, increasing the value of its whole capital, is as productive a labour as that of the locksmith who protects portions of the capital from pillage, or the trader who transports it from place to place; and that the efforts of those who instruct, or rationally amuse the community, give new value to its capital, which their labour enables the owner to expend in purchasing education or entertainment.

It seems now agreed that in the complicated system of civilized society, indeed in any society where the division of labour is carried to any considerable extent, it becomes wholly impossible to say who feeds, who clothes, who instructs, who defends, who amuses the community, as it is to say which of the farm servants raises the crop, or which of the artisans makes the machine or the tool; and that nothing can be more unsound than the distinction drawn between one kind of labour and another, because one realizes nothing tangible, its produce vanishing in the act of its production, and because employing many servants or many soldiers is expensive, and employing many artisans is profitable; for what gives increased value to all capital is productive, and the employing more farm servants or more artisans than we require would be as unprofitable as employing more soldiers or servants.

These and other propositions connected with this subject, though now generally admitted, were much resisted when I first explained and defended them above forty years ago; and I shall refer the reader to an Appendix containing the principal parts of the tract then published, because it happened to be the foundation of much that has since been written on this controversy without any

acknowledgement, and what is of more importance, without a due regard to the limits of the question then discussed.*

iv. Stock lent at interest is evidently capital to be replaced with a profit; but it may be used by the borrower either for his consumption, or as capital to be employed by him with a profit; and it is chiefly as capital that it is used. The profit paid to the lender is called interest, and depends, like all the other profits of stock, upon the competition in the market, that is, the proportion of the lenders to the borrowers in the money market. The greater or less abundance of the precious metals, or of paper currency, has no effect upon the rate of interest; for, as Mr. Hume, who first clearly explained this subject, says, "If every man in the country were to awake one morning with double the amount of money in his coffers, all money prices would be doubled; but profits, though calculated in a different coin, would really be the same, and the profits of lenders, and of merchants, and of manufacturers would not even be nominally increased; for these profits are to be reckoned by their proportion to the capital employed in the one case, lent in the other; and he who before would have vested one hundred pounds either in trade or loan, would now vest two hundred pounds, and would receive ten pounds instead of the five he before received, being the very same per centage in each case." In this chapter Dr. Smith, with a very singular deviation from his general principles, regards laws regulating the rate of interest with favour, provided

* It was in No. VIII. of the 'Edinburgh Review' that the paper was published, July, 1804.

the legal rate be fixed a little above the market rate. This opinion has been most unanswerably exposed and refuted by Mr. Bentham, in his admirable 'Defence of Usury,' published about the time of Dr. Smith's decease.

v. The capital of a country can only be employed in one or other of these four ways—in agriculture, mines, works, fisheries; or in manufactures; or in the wholesale trade, foreign and domestic; or in the retail trade. Dr. Smith considers it clear, that agriculture puts in motion most productive labourers, manufacturers next to agriculture, then retail trade, and wholesale trade least of all. He also holds that agriculture augments the capital of the community most rapidly, manufactures next, then retail trade, and lastly wholesale. The wholesale trade he divides into three branches, properly speaking into four—the home trade, the foreign direct trade of consumption, the foreign indirect or round about trade of consumption, and the carrying trade. The first he considers the most beneficial employment of capital, because it replaces two national capitals; the second and third are, according to him, less beneficial, because they replace one national and one foreign capital; while the carrying trade replaces two capitals, both foreign. I believe the views contained in this chapter are pretty generally admitted to be erroneous, that is to say, as regards the relative importance assigned to different branches of trade or employments of capital. This seems, as regards the comparison of agriculture, manufactures, and trade, to follow, from what has been stated under the third subdivision of this subject, and from what is more fully explained in the Appendix. In truth Dr. Smith here, as elsewhere, while he differs with the

Economists, falls into some of their most erroneous views. He regards agriculture as wholly different from manufactures, because nature here works with man, and adds to the amount of his possessions. But the powers of nature are as much required to aid us in a chemical, nay, even in a mechanical process, as in agriculture. The fermentation of grains to distil a beer or a spirit from them is as much an operation of nature as the germination of the seeds to grow the crop; it is as impossible for man to augment the quantity of matter in tilling the ground, as in working up the produce; all he does in either case is to new-mould, and to fashion; and the rude produce is as useless before he manufactures it, as the water, the salts, and the gaseous bodies, of which vegetables consist, are useless before the process of vegetation. The difference in trades which replace foreign, and those which replace home capitals, is better founded, although the sounder view is to consider all nations which interchange each other's commodities as one great community, and to regard the gain of each, even by the labour which the capital of any other puts in motion, and by the accumulation of profits which thence arises, as the gain more or less directly of that other; thus extending the doctrine of the division of labour to the whole community of nations, upon which doctrine we have seen depends the refutation of the errors respecting productive and unproductive labour in the case of any one nation.

III. The different progress of wealth in different nations forms the subject of the *third* book, which therefore treats in four successive chapters, *first*, of the national progress of opulence, by the cultivation of the country, and then by the improvement of the towns;

next of foreign commerce, as capital is safer in the first than the second, and in the second than in the third employment. *Secondly*, the various discouragements to agriculture by the circumstances and the barbarous policy of the European states after the fall of the Roman empire. *Thirdly*, the rise and progress of the towns in the dark ages. *Fourthly*, the improvement promoted in the country by the progress of the towns, which gave the agriculturist an increased market for his produce, applied their capital to the improvement and purchase of his land, and introduced a more regular police, as well as a freer state of society generally.

IV. The fourth book, the most important of the 'Wealth of Nations,' is devoted to the consideration of the two great systems of political economy, the Mercantile and the Agricultural; the discussion of the former occupies eight chapters, and one-fourth part of the whole work; that of the latter is comprised in a single chapter of moderate extent.

Part I. This elaborate, most able, and most completely satisfactory inquiry commences with showing the popular mistake or confusion which lies at the bottom of the mercantile system, runs through its whole doctrines, and gives rise to all its practical applications, that gold and silver, being the instruments of exchange and the ordinary measures of value, are therefore wealth itself independent of their value as instruments and measures, and that the great object of statesmen should be to multiply them in any given country, in order thereby to increase that country's wealth. Rulers having begun upon this view, prohibited the exportation of the precious metals; but this was found most vexatious to commerce, and therefore

the traders urged the governments of different countries to suffer the exportation, by which goods might be obtained, the re-exportation of which would restore with a profit the specie that had been sent to buy these, and thus augment its whole mass. These merchants, however, wholly adopting the fundamental error, and regarding specie as alone constituting wealth, further urged that the direct prohibition to export them could scarce ever be effectual, on account of the small bulk of the metals and their easy smuggling, the evil of evading the law adding to the cost of getting the metal; but they represented the true policy to consist in so regulating the balance of trade, as to make the exports exceed the imports of goods generally, the difference being of course paid in gold and silver. These arguments prevailed generally, both with speculative men and with practical statesmen; the home-trade, by far the most important of all in every country, was undervalued; foreign commerce was regarded as the great source of wealth; and positive restraints were imposed upon importation, while direct encouragements were given to exportation. The restraints were of two kinds,—restraints upon foreign goods, which were or could be manufactured at home, and this was a restraint on trade in these particular commodities with all countries indiscriminately—and restraints upon almost all goods from countries with which the balance of trade was supposed unfavourable. Encouragement to exportation was given in four ways, by drawbacks of the excise imports, or certain duties imposed; by actual bounties on exportation or on home manufactures, by treaties of commerce to obtain commercial privileges or favours, by planting colonies and monopolizing their trade. These are the six grand resources

of the Mercantile System—its great expedients for obtaining an increase of the precious metals by making the country export much and import little. Accustomed as we now are to the plain and obvious consideration, that those metals, like all other merchandise, can only be bought with other merchandise, that when this merchandise exists, it will obtain the metals; that unless it exists none can by any means be procured; that the natural industry of the country can alone give it existence; that this industry, if cramped by regulations, can never raise it so cheaply or so profitably as when left free; that all restraints upon importation diminish the value of home produce by raising the price of the foreign, which is its price; that all bounties are a waste of the capital, and obstruct the very ends they are intended to gain; finally, that the metals themselves are not wealth, but only one part, and a very small and most insignificant part, of the national capital, which might be augmented to exuberance, and make the nation abundantly and superabundantly wealthy, without any specie at all, if means could be devised of restraining the excessive issue of a paper currency, or any other instrument could be devised for conveniently effecting exchanges—accustomed as we now are to these obvious views of this subject, we seem to wonder that the elaborate exposure of manifest error to which the *six* chapters of Dr. Smith's work are devoted, each chapter examining one of the resources of the mercantile system, should ever have been required in order to overthrow the fabric. But it is because he wrote those invaluable chapters that these doctrines, which though often before attacked, as we have seen, both abroad and at home, yet continued everywhere to prevail, and especially to prevail among the rulers of

the world, at length received their demonstrative refutation, and that we now can look back with wonder on the darkness which this great light dispelled.

i. If the importation of any commodity is restricted, there is an inducement held out to the raising or the manufacturing of that commodity at home; capital is drawn towards its production which would not otherwise have been so employed, and workmen are engaged in raising or manufacturing it who would have been otherwise occupied. But this is hurtful on two accounts; men's regard for their own interest is sure to make them work and employ workmen in the way most likely to yield them a profit; and the natural advantages of each country or district of a country for raising or for manufacturing certain commodities must always determine where they can be grown or made the cheapest. The inducing men to cultivate one branch rather than another of industry, must therefore prevent their industry from being most profitably employed, and the confining the inhabitants of the country to the commodities produced by its own inhabitants makes them pay dearer for them than they otherwise would do; and thus lowers the real value of all the other produce of the country.—Dr. Smith states the exceptions to which the general rule is liable. They are said by him to be two-fold, but in reality he allows four exceptions. Defence being more important than wealth, he greatly praises the provisions of the 'Navigation Law,' whereby, in order to increase the amount of British shipping, and to destroy the carrying trade of Holland, none but British ships could be employed either in the colonial, or the coasting, or the carrying trade, or in importing from any foreign country any article not the produce of that country, also pro-

hibiting British ships to import from one country the produce of any other.—Again: when any tax is laid upon one article of home-growth or manufacture, he considers it right to lay an equal or countervailing duty upon the importation of the same article.—He also allows that when any article has been unnaturally encouraged by former prohibitions, or by the restriction of importation, justice, as well as policy, requires that the prohibition or restriction should only be taken off "slowly, gradually, and after a very long warning."—Finally, he conceives it just and right to retaliate on Foreign States, which have restricted the dealing in our commodities by restraining our people from dealing in theirs, providing we can thus hope to obtain an alteration in their policy. But the consideration how far such experiments are likely in any case to succeed, he says, belongs not so much to the philosopher or the lawgiver as to him whom he is pleased to mention as the "insidious and crafty animal, vulgarly called a statesman or politician, whose councils are directed by the momentary fluctuation of affairs." (Vol. II. p. 201.) I trust I may be excused for saying that my councils were always directed by more liberal and permanent views than Dr. Smith himself on this one point entertained; being always pointed to dissuade my "brother animals" from any such retaliating process as he approves, and to recommend liberal principles as more likely in the end to remove the prejudices of Foreign States. In one thing we all appeared quite to agree with Dr. Smith, that "to expect the entire restoration of freedom of trade would be as absurd as expecting to see an Oceana or an Utopia established." (Vol. II. p. 206.)

ii. The unreasonableness of general restraints upon

importations from particular countries on account of the balance of trade is next shown, first, on the principles of the Mercantile System, and secondly, upon general and sounder principles.

1. Supposing that the freest trade were allowed with any given country with which the balance was supposed unfavourable, it by no means follows that this would prevent a gain with all countries in the amount of specie imported, because the importation of more goods from the given country than we exported to it might very possibly enable us to export more to some other countries with which we had no other means of trading, because even if all the goods imported from the given country were consumed, and not re-exported, the balance would be better preserved if they were bought cheaper there than they could be elsewhere. Add to this, the impossibility of ascertaining with any tolerable approach to accuracy the balance of trade with any country from the inaccurate valuations in custom-house books, and from the course of exchange being influenced, not merely by the dealings between any two countries, but by the dealings of each with all other countries, as well as by the state of the coin in both, by the arrangements made for defraying the expense of coinage, and by the practice of paying sometimes in bank money and sometimes in specie currency. The course of exchange will frequently appear to be in favour of nations which pay in bank money, and against those which pay in currency, though the real exchange may be the other way in each case. This leads to a long but very valuable digression concerning Banks of Deposit, especially that of Amsterdam, on which the author tells us, in the last edition, that he

received his information from Mr. Hope; and it was the first time that any intelligible account of that celebrated establishment had ever been given to the world. Mr. Hope estimated the amount of the deposits in 1750, at about three and a quarter millions sterling; and Dr. Smith, like the rest of mankind, believed that the oath annually taken by the burgomasters was sacred "among that sober and religious people," and that not a florin was ever issued except to the depositors, the whole profit of the bank being the commission of a quarter per cent. on deposits of silver, and a half per cent. on those of gold. But about the very time that Mr. Hope spoke of, or immediately after, the faith which had remained inviolate from 1609, the date of the Bank's foundation, was broken by that body,—large loans were secretly made to the Government and the East India Company; the annual oath continued to be taken by that "sober and religious people," and to be annually broken; in 1790, the bank announced that no deposits under 250*l.* would be returned, and that ten per cent. would be returned on all others; and all this was submitted to without impairing the bank's credit—so sturdy a plant is confidence, grounded on long habit and long-sustained good faith! At length, in 1796, it was discovered that above a million sterling, lent covertly, could not now be recovered from the State by the Company, whose claims on the public were assigned over to its creditors. The bank paper, before bearing a premium of 5 per cent., now fell to 16 discount.

2. Hitherto we have tried the merits of the Mercantile System for increasing the precious metals, on the principles of the system itself. But more rational views condemn the

attempt altogether. The supposition that two nations can only gain by trade when each imports an equal value of commodities from the other, and that if one imports more it loses, is perfectly absurd, and betokens a complete inattention to the nature of trade as well as of money. If both import from each other an equal value of goods, so far from neither gaining, both gain, and nearly in an equal degree. The benefit of England in receiving the wines of France, which it cannot grow, is equal to the benefit of France in receiving from England the coal, which it cannot raise, or the steam-engines, which it cannot make. If there were no balance at all on the year's account, not only all the coal and machinery, but all the marketable goods in England would be the more valuable in amount, because all could be exchanged for wines, and not only all the wines, but all the silks and other goods of France would be more valuable, because they could be exchanged for our coals or our engines. The interest of each nation is to obtain a vent for the produce which it has no occasion for, and a supply of the things which it wants. Its labour and its capital is thus most profitably employed; its comforts are provided for, and its wealth is increased. If it can buy cheaper than it can raise or make, it is more profitably employed in importing than in producing, for the very same reason that it is more profitable for the farmer to buy his ploughs and his clothes than to make them. Where it can buy cheapest and sell dearest, there ought it to resort—for the very same reason that it is more profitable for a farmer to buy of the workman in the next parish who makes ploughs or clothes better and cheaper than the workman in his own parish. The

only balance to be considered by rational men as affecting the progress of any nation's riches, is that of production and consumption: when it consumes more goods than it produces, it will be impoverished; when it consumes less, it will be enriched by accumulation. But this accumulation will be going on, and the national wealth be increasing, while the exportation of specie by the balance of trade is going on during the whole time. For half a century together this appears to have gone on in the North American States before the Revolution; and yet, though the currency was almost entirely paper, no part of the world had made greater or more rapid strides towards wealth and prosperity.

iii. It does not appear that drawbacks are exposed to serious objections upon any principle. If any commodity is taxed at home, and cannot be re-exported with the weight of the duty upon it, there seems no reason why the whole or the greater part of the tax or duty should not be repaid upon the exportation. Care must, of course, be taken to prevent clandestinely retaining or re-landing the goods for home consumption; and Dr. Smith considers the exportation to our colonies, which can only receive goods through us, as not a case for drawback, because the impost must be paid by the colonists, if they want the goods.

iv. Bounties stand in a very different predicament, if we take care to distinguish between real and only apparent bounties. A real bounty is the payment of something to encourage the exportation of goods not subject to any such impost at home. An apparent bounty is the payment of something to encourage the exportation of goods which are either directly subject to a tax, or

made of, or with, articles subject to a tax—as refined sugar made of taxed raw sugar, or gunpowder made of saltpetre that has paid duty. These apparent bounties are, in reality, drawbacks, and fall within the exception of the last subdivision. But real bounties are, in every case, objectionable; they are liable to the general objection urged against encouraging one branch of industry, or one employment of capital, by restricting importation; they force labour and capital into employments they would not naturally seek, and therefore would not advantageously have. But they are liable to the still greater objection, that the giving them always assumes the employment of capital to be prejudicial, the trade to be a losing one, else there could be no reason whatever for giving them; and thus we pay more for driving a losing trade, and wisely make a present to foreigners at the expense of our own people, for the purpose of increasing the amount of the specie which we are to gain from those foreigners. Dr. Smith examines particularly the two most celebrated cases of bounty; first, that on exported corn, which he shows to have both raised its price to the public at the public expense—to have prevented the plenty of one year from providing for the want of another—to have had no effect in encouraging tillage, because it only gave the grower a nominal benefit—to have raised the money price of our goods in the home market, and lowered their price abroad—to have enabled foreigners to eat of corn somewhat cheaper than we do ourselves. The other bounty discussed is that in the herring and whale fisheries; in which he clearly shows the Government to have been grievously imposed upon by the great authors of all such measures—the members of the

commercial interest, whom he never spares in his sharp and severe censures.

To this subdivision is naturally enough added a dissertation called, somewhat inaccurately, a 'Digression on the Corn Trade and Corn Laws,' the bounty having been already touched upon. There are four trades engaged in this line of business—those of the inland dealer, the importer, the exporter, and the carrier or importer for re-exportation. These trades may be carried on separately or together.

1. The interest of the consumer, as well as of the producer, is clearly served by the first class of traders; nor can anything be more clear than that, where they raise the price, which they have no power of doing unless there is a scarcity either begun or impending, they benefit the people by putting them on short allowance, and preventing dearth from being exchanged for famine. The gross injustice, and revolting absurdity, of all the laws, now happily abrogated, against forestalling and regrating, intended to keep down prices but in reality keeping them up, by discouraging trade, by discouraging agriculture, and by discouraging thrift, it is needless to illustrate either by reason or example.

2. The trade of the importer is likewise beneficial to the community by somewhat lowering the price of corn; and though this may lower the nominal revenue of the home producer, it likewise lessens his expenses, and so leaves his net income the same, not to mention that in common years there is never much more than the six hundredth part of our comsumption imported from abroad. One thing, however, requires to be observed as to the admission of foreign corn. The producers have

for a long course of years received a money income higher than a free trade in grain might leave it. Hence the difficulty of reducing that income, when all their settlements, and all their mortgages, and all their other time bargains, as well as the rents paid by their tenants on existing leases, have been calculated and augmented upon the foot of higher prices. The importance of the landed interest to any country is not easily overrated. Dr. Smith himself, on every occasion, puts it much higher than that of any other of the great classes of the community. In a form of government, and frame of society, such as ours, it is to be carefully considered. The burthens peculiar to the owners and cultivators of the soil are likewise to be taken into the account. Not only do they pay a heavy land tax, but still heavier county and parish rates, amounting in all to between six and seven millions. Supposing that the malt tax falls wholly on the consumer, yet it certainly tends to discourage the cultivation of barley very materially by diminishing its natural consumption. Barley too, is the grain to which soils are more universally adapted than to wheat; and, independent of the direct operation of the tax in discouraging its growth for the sake of revenue, the regulations necessary to prevent illicit distillation press severely on the grower by preventing him from using grain to feed his cattle. All these considerations made the late Mr. Ricardo, a strong and unsparing advocate of free trade, propose a permanent fixed duty on corn imported, as a compensation to the farmer, in respect of his being pressed by burthens from which the foreign grower is free.* Hence,

* The argument often so thoughtlessly employed by the wild adversaries of the landed interest, that the poor rates fall on houses,

too, some reasoners extend several of Dr. Smith's arguments in favour of countervailing duties, and his view of further exceptions being allowed to the rule of free importation by the consideration that other things may be more important than wealth, and, possibly, that the support of the internal institutions may be as much a fair object of care as its external defence of a country. On this inquiry I do not enter. The subject of steadiness of price is not considered by Dr. Smith, though it forms, at least in our times, the main topic of those who defend the corn laws. The tendency of the importation, by opening our market to the growers of Poland and the Ukraine, though not in terms referred to, must have been in his eye, because in no other way could the free importation of corn permanently reduce its price, the opening of our markets having the inevitable effect of raising its price abroad. But as Poland and the Ukraine can only increase their production of grain gradually in the gradual advance of their population, it seems evident that the permanent fall in prices must be the work of time, and could not easily occasion any great or sudden shock to our internal system.

3. The free export of corn, whether home-grown or

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and thus on the merchant and manufacturer as well as on the landowner and farmer, seems quite inconceivable. Suppose them right in stating that half the poor rates fall on house-rent, still, as the landowner and farmer pay this also, there would remain above three millions exclusively laid on them. No man of common reflection can be ignorant that the manufacturer is rated at the rent of a building worth to him, perhaps, 20,000*l.* a year, that rent being 1000*l.* or 1200*l.*, while the landowner whose income is the same pays in the proportion ten or twelve times more. It is equally inaccurate to reckon the excise, customs, stamps, as burthens falling on the rest of the community and not on the land. The landowner pays his share of these largely, and the stamps are peculiarly burthensome to him.

imported, is essential both to the interests of the producer and the consumer, because, unless it is certain that the quantity grown, if superabundant, can be easily taken off, the growth will be pared down to so low an amount as must prevent cheapness, and, unless it is certain that any surplus imported can be re-exported, there will be the same slowness to lower prices by importation. As for the arguments against importing or exporting for fear foreign States should shut their ports and we should thus lose our needful supplies, the experience even of Dr. Smith's age showed how little ground there was for such alarms; but in our day, who have seen one vast system of continental despotism established upon a monstrous military power, wielded by a single man, and wielded in direct hostility to our commerce, yet fail to prevent a much greater importation than usual of all kinds of grain, anything more chimerical than such fears cannot well be imagined.

4. The carrying trade is not perhaps of so much importance to the home market as the three other branches of the corn trade: yet it does contribute to its supply; for the carrier will always be ready to keep part of his capital under his eye and controul, and thus to sell at home, just as Holland became a great emporium of all articles, while she was the carrier of the world.

The general soundness of Dr. Smith's views upon this important subject has never been questioned by persons of good authority, unless upon the questions connected with the bounty. Some writers, who are in general the advocates of free trade, have considered the benefits conferred by the bounty upon agriculture, and through agriculture upon the whole industry of the community,

to be sufficiently important to counterbalance the arguments against so great a deviation from all sound principle as the payment of a portion out of the national capital, for the purpose of drawing more of this capital into one line of employment than would otherwise seek that line. They have also considered that a reduction in the price of agricultural produce is the ultimate effect of this system. Dr. Anderson, the author of the true Theory of Rent, (as far back as 1777,) and Mr. Malthus hold these opinions. Others, again, who entirely agree in Dr. Smith's opinion, dispute the reasons by which he supports it. Thus Professor Maculloch has shown that there is a fallacy in the assumption of the real value of corn being unalterable as Dr. Smith supposes, (Corn Laws, 'Encyclopædia Brit.' VII. 347.) And Mr. Horner, in a most able paper in the 'Edinburgh Review' (V. 199), shows that Dr. Smith arrives at the conclusion of the enhancement of price in the home market by a wrong route, the enhancement being by him regarded as the direct and inevitable effect of the bounty, and kept separate, from its effect in extending the foreign demand, whereas Mr. Horner shows, I think very clearly, that the extension is the direct and main cause of the enhancement, and that the bounty only operates incidentally in this way. It is also to be observed that no reference is made to the operation of the bounty upon the foreign demand in the two first editions of the 'Wealth of Nations.' It may be further mentioned that, some time before the 'Wealth of Nations' was published, an act had passed materially relaxing the bounty law of King William. Of this alteration Dr. Smith remarks, that like the laws of Solon, if not the best it was as good as the

temper of the times would admit; and it is well known that Mr. Burke, its author, told him, when objecting to it, that although philosophers had the privilege of conceiving their diagrams in geometric accuracy, the engineer must often impair the symmetry as well as simplicity of his machine, to overcome the irregularities of friction and resistance. The corn bounty was entirely abrogated in 1815; and in 1830 all bounties whatever were repealed.

v. The subject of commercial treaties is next to be considered. They are liable and always to this objection, that as they grant advantages to the growers or manufacturers of one nation over the growers and manufacturers of all others, so those advantages are at the expense of the people living under the Government which has granted them. They buy dearer and sell cheaper than they would do if their trade was left free with all nations. No loss will be incurred either by the nation or by individuals as in the case of bounties, but a smaller gain will be made than might otherwise have been made. Unless some gain were made, the monopoly given to the foreigner would extinguish the home trade. But some commercial treaties have been made, with the view of turning the balance in one country's favour with the other country to which it gave a monopoly of its markets. An instance of this is given in the Methuen Treaty, in 1703, with Portugal, examined in detail by Dr. Smith; who shows that the obligation incurred by Great Britain to admit Portugal wines at a third part less duty than French, in return for Portugal only agreeing not to raise the duties on British woollens, though receiving them on the same terms as those of Holland and France, is an unfair and improvident bargain, even upon the principles of the mercantile system, of which this treaty is vaunted

as the especial triumph and glory. The great aim of that system, to increase the amount by importation of the precious metals, undoubtedly gave rise to this treaty with Portugal, whose share in the mines of gold is so large. Dr. Smith takes occasion to show, that there needs no care whatever of the Government in any country to obtain these metals, whether for trade, or for revenue, or for subsidy, or for any other head of expenditure, foreign or domestic, as its ordinary commerce must always insure a sufficient supply of them; that is, as much of them as it can afford to pay for, and this is as much as it ever can have.—He takes occasion likewise in closing this subject to introduce a discussion on the coinage and in favour of a moderate seignorage, a discussion out of place in this part of his work, and which rather belonged, as he himself admits, to the subdivision of the first book which treated of money. Perhaps it more properly should have formed another head of the expedients of the mercantile system. In its present place it seems much more entitled to the name of a digression than any one of the three which have been so termed, with this difference, that it has no kind of connexion with the subject to which it is annexed, and can hardly, like those others, have been suggested by it, excepting that it follows the remarks on Portuguese gold.

vi. The great subject of Colonial establishments concludes this discussion of the expedients of the commercial system. Dr. Smith *first* explains the motives for planting new colonies; *secondly*, the causes of their prosperity; *thirdly*, the advantages which Europe has derived from the discovery of America, and the easier communication by sea with India.

1. The ancient colonies of Greece and Rome were

suggested by different circumstances, and founded on different principles. Their names sufficiently show this diversity. The Greek settlement was called, *αποικια*, a going from home; the Latin, *colonia*, a plantation; the former kinds of colony lost all connexion with the parent state; the latter were its advanced posts or garrisons in a conquered country; both originated or at least had some connexion with the narrowness of the home territory, and the necessity of obtaining settlements elsewhere. With the Greeks, no other purpose was served but to get rid of their surplus population; with the Romans, beside this, the securing their conquests formed a motive for colonizing. The modern colonies had some concern with the convenience of emigration, but far more with the promotion of commerce and the extension of dominion. After the Venetians and Portuguese had enriched themselves by the East Indian commerce, the Spaniards and Portuguese turned themselves to exploring and settling the islands and continent of South America, where the rich returns of gold and silver gave them so great commercial renown, that England, France, and Holland pursued a like course, and planted colonies in the American islands and continents. The jealousy with which Spain and Portugal prevented all foreign intercourse with their colonies made it necessary for other countries to obtain similar possessions, if they would have any trade in the valuable produce of those distant fertile countries; and each nation successively founded its colonial policy upon the same jealous aud exclusive spirit which had shut them all out of the colonies first established. The motive of all these colonizing projects was the thirst of gold; in all of them the traffic in other produce was soon found

to be the most valuable; and the commerce in commodities at first despised, gives rise now to the bulk of the European intercourse with the new world.

2. The abundance of good land, and the knowledge of agriculture and the arts which settlers take out with them to a new or a conquered colony, are the causes of its rapid increase in population and in wealth. The American plantations greatly surpass the Greek in this respect, and very greatly surpass the Roman, while their distance from the mother country gives them far greater freedom than the latter had in managing their own concerns. Even under the tyrannical government and bad management of Spain, Mexico had 100,000 inhabitants a century ago, five times as many as at the conquest. Brazil had above half a million of Portuguese, or their descendants; while in British North America, the number of the people doubles in seventeen or eighteen years, and now amounts to nearly 20,000,000. The more rapid progress of our colonies is owing to four leading circumstances: the law preventing land from being engrossed in a few hands, and preventing it being conveyed unless a certain portion is cultivated; the general law of equal division by succession, without regard to primogeniture; the low amount of the taxes; the more favourable trading system, which gives no exclusive companies the monopoly of their commerce, and allows certain produce to be freely imported into the mother country, throwing open for all produce all her ports, and giving them all the inestimable advantages of a free and popular government.

3. The advantages derived from the colonies have been either those obtained by Europe at large, or those obtained by the several colonizing Powers.

(1.) The comforts and enjoyments of life have been varied and increased to all nations in the old world. The industry of all has been stimulated by the new vent for their produce, and countries which even do not directly trade with the colonies, have benefited by their produce, and by the surplus produce of the countries that conduct the trade, which is occasioned by the colonial demand.

(2.) The colonizing countries have derived not only the benefit which all States receive from their own dominions, but also the peculiar advantages of their exclusive traffic with the colonies. The former have been very trifling, as means of defence and revenue are all that a State can derive from its own territory, and of these nothing has been afforded, except the revenue derived from the Spanish and Portuguese settlements. But the commercial monopoly has certainly been very lucrative. This advantage, however, is, by Dr. Smith, considered to be rather relative than absolute,—an advantage over nations having no colonies, and whose industry is to a certain degree oppressed by their exclusion from the colonial commerce. The monopoly has kept down the agriculture and trade of the colonies, and thus it has injured the mother country by curtailing the natural supply and thereby raising the natural price of colonial produce. But it has also injured the natural trade and agriculture of the mother country, by drawing much more capital towards the colonial traffic and cultivation than would naturally have gone thither, thus gradually lowering the profits by increasing the competition in the colonial trade, and proportionably decreasing the competition and raising the profits in other branches of commerce. The rate of profit in the mother country

being thus kept unnaturally high, has necessarily been hurtful to its trade with all other countries. Dr. Smith, likewise contends, that the monopoly draws capital from a foreign trade of consumption with foreign countries yielding quick returns, to a similar trade with distant countries yielding slow returns; that it draws capital from a direct to a round-about foreign trade of consumption; and that it draws some capital from all trade of consumption to a carrying trade. In these respects he holds the colonial monopoly to have been greatly prejudicial. Lastly, he considers it a disadvantage that this great branch of commerce occasions our manufactures not to be adapted to a variety of small markets but to one or two large ones, destroying the uniform and equal balance that would naturally have taken place among the different employments of capital, and thus diminishing the great security derived from a moderate amount of capital being invested in a great number of trades, of which if one should fail, another may be expected to succeed.

It is not to be denied, that a great portion of Dr. Smith's objections to the colonial monopoly are well founded. The object of that monopoly is to overcome the natural effects of distance and severance, and to render the remote territory, situated at the other extremity of the globe, a portion of the mother country's European dominions. But even if such be its object, it is treating the colony unlike any other part of the parent State's dominions, to forbid all trade between its people and foreign States, and to confine its commercial existence to its relations with the rest of the empire. No one ever thought of compelling Lancashire or Devon-

shire to trade with the other parts of England alone. But we have even gone further and prohibited certain of our colonies from trading with some of our other colonies, as if Lancashire and Devonshire should be obliged to trade with Middlesex alone. However, it must be allowed, that Dr. Smith is wholly in error when he regards the colonial trade and agriculture as foreign, and the capital invested in them as invested in remote foreign trade, round-about foreign trade, and carrying trade. The colonies are part of the empire; their people are its citizens and subjects; the trade with the colonies is as much a home trade, as much replaces British capital, and puts in motion two classes of British labourers, as the trade between two provinces of the mother country. Indeed it resembles most nearly the commerce between the country and the towns in any given state, the traffic of the producers with the consumers, of the farmers with the manufacturers, of all commerce the most gainful. It is also certain, that he has overlooked another and a most material consideration. The capital invested in foreign agriculture, where the capitalist and his family reside on their property or their farms, remains abroad, both stock and profits. The capital invested in colonial agriculture returns its profits almost immediately to support families residing in the mother country. These profits, moreover, can be subjected to the taxation of the State with a view to support its revenue.

The benefits of the colonial trade, and even its monopoly, in contributing to the naval resources of the State, have been freely admitted by Dr. Smith, as has already been seen. But one important consideration he has wholly

left out of view, or only vaguely hinted at it. When comparing the effects of the colonial trade as monopolized with its effects if left free, he assumes that all nations have their colonial trade unfettered, and omits to remark that any one doing so would not gain at all as he supposes, if the others continued the exclusive system.—Akin to this is his overlooking the dilemma in which England, France, and Holland were severally placed by the Spanish and Portuguese monopolies. In order to share the advantages of the colonial trade they were compelled to have colonies of their own. It is one thing to ask, Whether there be any benefit from this or that given country planting colonies? and another to ask, Whether the colonial trade is ever otherwise than in some degree beneficial? Possibly it would be better if two or three nations should plant colonies, especially if they let others profit by their traffic, that these others should have none of their own. But who is so wild as to expect that ever this could happen, that any nation should be at all the expense, trouble, risk of founding and rearing a settlement, and afterwards of governing and protecting it, and then let all other nations benefit equally by its commerce?—Lastly, Dr. Smith has omitted to consider the great advantage which a nation derives from having once had colonial possessions, even after they have thrown off the yoke and ceased to be under the government of the mother country. The market for her produce is thus continued; the intercourse of emigration and of trade is maintained between the nations now become independent; common origin, common language, common laws and customs, making the firm bond which naturally exists between the parent

state and the colony, survive their political severance; and if no untoward circumstances have attended that event, there must always remain a natural amity and alliance between the two branches of the same people. All these things have been fully explained in the work upon Colonial Policy which I published two-and-forty years ago, and they are there illustrated by the history of all the European settlements in America and elsewhere. It is also there shown how little the charge of colonial government has been, and how rarely colonial interests have involved the mother country in war.

vii. The subject of the mercantile system, the first part of the fourth book, is closed with a general chapter, containing not a summary of the insuperable objections to that theory, as might have been expected from the title—'Conclusion of the Mercantile System'—but a number of remarks on bounties and prohibitions, specifying those actually given or imposed. These it is unnecessary to abstract.

In concluding the analysis of this, the most important part of Dr. Smith's work, we may be permitted to consider, with some regret, that he should have so constantly expressed himself with harshness respecting the mercantile and manufacturing classes of the community, or rather the merchants and the master manufacturers. He, on all occasions, regards them as inferior in character to the land-owners and farmers, inferior in patriotism and disinterestedness, inferior in good feeling—in short only to be praised for their greater acuteness, and better knowledge of their own interests. This spirit, which he derives from a view of the many restrictive laws which may no doubt be traced to them, breaks forth constantly

in the course of the book, but it is especially to be observed in such passages as that of Book iv., chap. ii., (Vol. II., p. 307); Book iv., chap. vii., (II., 441); Book iv., chap. viii., (II., 489*). He carries his prejudice even further; he regards manufacturing industry as wholly unfavourable to both the acquisition of knowledge, the enlargement of the mind, and even the enjoyment of health.

Part II.—The remaining part of this fourth book is devoted to a full explanation of the agricultural system, that is, the theory of the French Economists, and to remarks tending to show how erroneously it deals with the classification of labour and profits, when it represents employment of labour or of capital in agriculture as alone productive. The subject has already been so fully discussed, both in the foregoing analysis and in the Appendix, that nothing remains to be added in this place.

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* "The member of parliament who supports every proposal for strengthening their monopoly, is sure to acquire not only the reputation of understanding trade but great popularity. If he opposes them, on the contrary, and still more if he has authority enough to be able to thwart them, neither the most acknowledged probity or the highest rank, nor the greatest public services, can protect him from the most infamous abuse and detraction, from personal insults, nay, sometimes from real danger from the insolent outrage of furious and disappointed monopolists." (II., 206.)—"Our great master-manufacturers are as intent to keep down the wages of their own weavers, or the earnings of the poor spinners, and it is by no means for the benefit of the workman that they endeavour either to raise the price of the complete work or to lower that of the ruder material. It is the industry which is carried on for the benefit of the rich and powerful that is principally encouraged by our mercantile system,—that which is carried on for the benefit of the poor and the indigent is too often either neglected or oppressed." (II. 489.)

V. We are thus brought to the fifth and last book of Dr. Smith's work, in which he examines the important subject of the Public Revenue, or that portion of the revenue of individuals which is allotted to the Expenses of the State. This subject is treated in three subdivisions: the expenses of the commonwealth; the sources of the public revenue; public debts.

i. The expenses of the commonwealth are—*first*, those of defence; *secondly*, those of justice; *thirdly*, those of public works and institutions; *fourthly*, those for supporting the sovereign's dignity.

1. In treating of defence, we are led to consider the progress of the military art. At first, all the clan are warriors, and the chief is the first warrior. In the hunting state, very small bodies can be collected; in the pastoral state only, large bodies may be gathered together; in the infancy of the agricultural state, also, large forces may be raised. But as society advances, manufactures are introduced, and the ruder art of war is improved. It thus becomes doubly necessary to have a certain class of the community trained to arms, and alone called out to serve; for without this, manufacturing industry could not go on, and the military art could not be learnt. If this plan be pursued, a regular army is raised; if the whole citizens in rotation are called upon to serve, it is a militia. The superior efficiency of standing armies has been felt in all ages. Philip of Macedon by their help conquered Greece, and his son conquered Persia. The victories of Hannibal, and, after the second Punic War, those of Rome, were owing to the same superiority. The history of modern wars reads the same lesson. The expense, however, of this mode of

defence, now become necessary, is very great in all countries.

2. In early times, the administration of justice in the hands of the sovereign, or of his delegate, was not an expense, but a source of revenue; and hence the greatest abuses, the most sordid corruption, the most cruel injustice, disfigured the administration. Afterwards, justice was said to be administered gratis, that is, by persons whom the sovereign paid; but in all countries fees were exacted from the suitors. Dr. Smith is very far from perceiving the evils of taxing law proceedings; and, indeed, this is one of the parts of his work in which he seems to have taken the least pains, either to inform himself, or to acquire sound notions of principle. Mr. Bentham has, in his admirable tract on the subject ('Protest against Law Taxes'), demonstrated unanswerably that these imposts are the very worst that have ever, to any considerable extent, been adopted by any civilized nation. Dr. Smith, however, had very sound ideas on the necessity of separating the judicial from the executive office in every State.

3. Institutions or works are of three classes—those for aiding the commerce of the country, those for the education of youth, and those for instructing its adult citizens.

(1.) Those for aiding commerce may either be directed to help the general commerce of a country, or to help particular branches. To the former class belong canals, roads, bridges—of which the cost, either as to making or repairing, may be well and justly defrayed by a toll on those who use them. In some countries, as in France, this expense is defrayed by the State on all the common

roads; in others, as in England, the property of tolls is in private hands, and the burthen of repairing the roads lies on them. The repair of the Languedoc Canal was intrusted, with its tolls, to the Engineer Riqueti's family. A local administration in such cases is always better than a central—less costly, and less liable to abuse. To the class of works required for particular branches of commerce belong—factories, established in countries either wholly barbarous, or varying widely in their customs and laws from our own; establishments of Consuls and Ministers; regulated companies, and joint stock companies. Those joint stock companies the members of which have the privilege of transferring their shares, and of being only liable each to the extent of his subscription, have a tendency to draw more capital into the trade than could be invested by the members of private partnerships. Hence they are only to be approved in cases where there is great public benefit to be derived from the trade they undertake, and where private adventure would be insufficient to conduct it. There seem to be only four kinds of business which justify their formation—banking, insurances, canals, water-works. Had Dr. Smith lived to our day, he would have included railways. The numbers of such companies for purposes of foreign trade which have failed, when not supported by the grant of exclusive privileges, is so great, that, a century ago, the Abbé Morellet enumerated no less than fifty-five such instances in one hundred and fifty years.

(2.) Institutions for the education of children or youth do not necessarily fall on the State to maintain them; they may defray their own expenses. The

general rule of such establishments is, that they are founded or endowed by private munificence, sometimes by the bounty of former sovereigns. Dr. Smith contends that their instruction is always worse than that of schools and colleges which subsist by the exertions of teachers paid by school fees. He also objects to such endowments, as drawing to literary pursuits a greater number of persons than would naturally devote themselves to a literary life, or than its gains can support. He seems to admit, however, that there is an advantage even in the small amount of education bestowed in endowed schools and colleges, so very much underrated by him; for he suggests that without them there might have been nothing taught at all. He has even carried his view further, and allowed that the public should establish parish schools: apparently on the ground that the very ignorance which such establishments are calculated to remove, if left to operate, would prevent the bulk of mankind from making any exertion to obtain schools and teachers, by preventing men from being aware of their own deficiencies.

(3.) The institutions for adult education are chiefly those for teaching religion. Dr. Smith does not give a very decided opinion against an establishment supported by law and by the State, but all, or nearly all his reasoning tends towards that negative; and he gets the better of Mr. Hume's argument, (which he cites as that of "by far the greatest philosopher and historian of the present age,") that there is no better way of preventing the dangers of fanaticism than paying a clergy to be quiet,*

* "Qui otium reipublicæ perturbant, reddam otiosos." (Cic.)

by stating that this mischief may be counteracted in two ways: encouraging the study of science not by foundations, but by requiring certain qualifications in philosophical knowledge as the title to offices; and encouraging the arts and amusements, including dramatic exhibitions by which he sets great store. In discussing establishments he touches but slightly on tithes, which he regards as a tax upon the landlord, overlooking the consideration that they are a property which never belonged to him, and are by many reasoners held to be, I think on very doubtful grounds, no more a tax than a rent-charge on his land is. He afterwards recurs to the subject, but no where enters fully into it.

(4.) The expense of maintaining the sovereign's dignity necessarily increases with the progress of luxury and refinement: when all ranks live expensively, the sovereign must be maintained in greater and more expensive luxury than any.

ii. Having considered the expenses which fall upon the government in performing its functions and discharging its duties, we come next to examine the sources from which the funds are derived, to meet those expenses. These funds are of two descriptions; funds belonging to the Sovereign or the State, the revenue of which forms a public income—or income levied from the subjects of the State in the form of taxes. This division of the subject, therefore, is sub-divided into two parts.

Part 1. The Sovereign or the State may be possessed of property, and frequently has been, of various kinds. It may even have labourers, and employ them at a profit; or it may carry on profitable business on its own account and as a source of revenue. In rude States the Prince profits by the herds which belong to him, and sup-

port his expenditure and his power. Where slavery is allowed, the Prince may make a profit by the labour of his slaves. Small republics have driven traffic by their own mercantile profit in various ways. Hamburgh used to have the profit of selling wines in a public wine-cellar, and drugs in an apothecary's shop. Banking was always a source of revenue to the smaller Italian republics, and to Venice, Hamburgh, and Amsterdam. Many Princes have traded like private individuals. The Egyptian Pacha does so at this day; nor is there anything more unfair than such dignitaries entering into competition with their subjects, over whose dealings they exercise a controul. The post-office has always been to the Government of England and other countries a considerable source of revenue. Some Italian and German States have profited by insurance against fire and sea risk. Many of these small States have gained profit by lending at interest their savings or treasure, and thus dealing like other money-lenders. Most States have driven the gainful and dishonest trade of gambling, by way of lottery. But land has in all instances been held by the State. In former times it formed the bulk of the revenue in all feudal countries, the Sovereign being the greatest feudal lord, and defraying all, or nearly all the expenses of his government by his rents as a landowner, while for his military establishment he had to depend upon the precarious and temporary services of the inferior landowners, the crown vassals. It was when the progress of civilization made such military service inconvenient and even impossible, that regular armies became necessary; these required a greater expenditure than the crown lands could supply; and other sources of revenue became necessary. The other expenses of the Government were

increased in proportion, and hence the total inadequacy of the rents compelled the State to provide for the government in all its branches by the levying of money from the people. This gave rise to the modern System of Taxation.

Part 2. Taxes imposed upon the people of any country, must necessarily fall, either upon the rent of land, the profits of stock, or the wages of labour; and a tax may fall on one or more of these three great branches of the income of the community. Hence the subject divides itself into four heads, as taxes are intended to fall upon rents, profits, wages, or on all indiscriminately,—I say, are intended so to fall, because we shall presently see that the incidence of an impost may be very different from that which its authors intended it should be. But there are four leading principles which apply to all taxes whatever, and which must in considering the merits of any given tax be kept always in view. *First.* All the subjects of a State should be called upon to contribute as nearly as possible in proportion to their several means or incomes. *Secondly.* Each individual should be taxed according to a known and certain, and not an arbitrary rule. *Thirdly.* Every tax should be levied in the time and manner most likely to suit the convenience of the contributors. *Fourthly.* Every tax should be so contrived as to take and to keep out of the people's pockets as little as possible beyond what goes into the coffers of the State. A tax may depart from this last principle in four ways: by requiring too large a number to collect and manage it; or by obstructing the people's industry and so injuring the fund of payment; or by encouraging smuggling and thus increasing the price of commodities,

while it ruins by prosecutions; or by subjecting the people to vexatious search and other annoyances, which though not directly money payments, may yet be reckoned as costing what every one would readily give to avoid the evil. This fourth maxim thus appears to be the most important of the whole. According as any tax does or does not conform itself to these several maxims, it is good or bad.

1. A tax on rent may be imposed either by valuing each district at so much yearly, and taking thence a sum, which shall never afterwards be altered; or by taking so much in proportion to the actual rent in every year, or at stated periods of adjustment, and so making the tax rise or fall with the actual value of landed income. In this country the land-tax, settled in the 4th William and Mary, comes under the first of these classes, and therefore sins against the first of the four maxims, but conforms itself to the other three. The second kind of tax is the *Impôt Foncière* of the French Economists. They contend, that all taxes fall ultimately upon rent, and therefore they argue that they ought to be at once and directly imposed upon it. But though Dr. Smith declines a discussion of the metaphysical reasoning by which they maintain such to be the ultimate incidence of all taxes, he yet *undertakes* to show by a review of the facts and arguments that the just conclusion is otherwise. He gives, however, no such proof; he contents himself with a statement taken from the *Mémoires sur les Droits*, published by the French Government, in what manner the tax upon rent and tithes is secured in many of the principal countries of the Continent. He next considers land-taxes, when taken in proportion to the produce and not

to the rent; and he shows clearly enough, that these, though advanced by the farmer, are paid by the landlord. Tithe and other such burthens, falling under this description, are unequal because in different lands and different situations, the produce, and consequently the tax, bears a different proportion to the rent. Taxes on the rent of houses, he clearly shows, must fall indifferently on all the sources of revenue, rent, profit, and wages, the house itself yielding no revenue, and by its use and wear resembling a consumable commodity. As nothing is a better test of a person's whole expenses than the house he lives in, a house tax is recommended by the first maxim, and it suits well enough with the other three. The ground-rent and not the rent payable for profits of building should be the subject of this tax, because that would not raise house-rent, and it would fall heaviest on the capital and larger houses, which can best afford to pay it. As revenue from houses is received without exerting any labour, and with little care either of superintendence or collection, it is a better subject of taxation than land-rents.

2. A tax upon the profits of stock must either fall upon the part of the profits which goes to pay the interest of the stock, or the price paid for the stock, or it must fall on the surplus profit over what the interest amounts to. The former revenue belongs to the owner of the stock, the latter being a compensation, generally a very moderate compensation, for the trouble and risk of employing the stock. He cannot pay this himself, for if he did he must run the risk and take the trouble for inadequate reward. Therefore he lays it upon the price of his goods if a trader, or deducts it from the rent if a farmer, or he

must take it from the interest, if he does not either raise his prices or lower his rent. Now the interest, though it seems to be, like rent, a fit subject of taxation, is really not so, for two reasons: it is impossible to get at profits of trade as you do at rent, and it is easy to remove stock in trade, while land is not removable. The result has been, that where attempts have been made to tax profits, the State has had recourse to some vague and inaccurate estimate, and has been always content with a very moderate proportion, answering to a very low valuation. Thus our land-tax, though intended to tax all profits, falls mainly on the country and on houses in the towns. In Holland and in Hamburgh, where stock was taxed, the inhabitants were allowed to assess themselves that an inquisition might be avoided. Had Dr. Smith lived to our days, he would have found some reason to be confirmed in his opinion of the land paying far more than its share, owing to its being irremovable and unconcealable; but he would also have seen how considerable an approximation to equal payment could be made by inquisitorial proceedings, and well-constructed machinery.—Taxes laid on particular trades must fall on the consumer, as the dealer will not remain in a business which does not yield the average rate of profit. A tax on all profits of one trade, but proportioned to each dealer's trade, finally falls on the consumer; if not so proportioned it falls on the consumer, but favours great and oppresses small dealers. The shop-tax once proposed had this disadvantage in a great degree; for all shops must have paid. The personal *taille* in France was a tax upon farmers' profits, and as a farmer paying rent never can withhold his crop from the market in order to raise his

prices, he can only throw the taille on the landlord by lowering his rent. The tax being levied according to the farmer's stock, made every one stock his farm as badly as possible, and endeavour to conceal the stock he had. Poll-taxes in countries having slaves, are taxes on profits. Poll-taxes on free men are of a wholly different nature, and are the most unequal of all. Taxes on household servants are taxes on consumption, and they are objectionable because servants are not employed in proportion to the income of their masters; then these taxes fall heavier on the middle classes, and not at all on the lower orders, unless so far as they may prevent some from finding employment.

An Appendix on this head discusses Taxes on Capital, which have not generally been intended to be levied by any State; all the imposts of this kind being meant to affect income only. But when property changes hands by death, then both the Romans in Augustus' time, the Dutch, the English, and all feudal countries, in taxing the casualties, intentionally levied imposts upon capital. The feudal perquisites on alienation operated when property was sold. Stamp duties on purchases have with us the same operation. Taxes on succession fall on the owner; taxes on sale fall on the seller, because he is the needy person and must pay. The Spanish *Alcavala* seems to be of this class, though Dr. Smith does not here consider it. All taxes on capital are unthrifty, because they diminish the fund for employing labour and machinery, or increasing production. Living upon the principal, is accordingly a common expression to denote the usual spendthrift course.

It must be observed that Dr. Smith in this, as in other

parts of his work, leaves out of view one important circumstance when speaking of capitalists, and also of labourers, shifting their stock or their labour to new channels of employment when a burthen is laid on them, or any other demand is made which tends to lower their gains. They very often linger on a long time, perhaps all their lives, in order to avoid the disagreeable consequences of the change; and because they have become expert in one employment and could not soon be equally so in another. What they would pay to avoid a risk or a disagreeable change of employment or business, may fairly be reckoned the difference of the two in value to them, according to an argument often used by Dr. Smith, and this price they pay for continuing in their former business or occupation. It is also to be observed that Dr. Smith, when he speaks of the tax often being thrown on the consumer, forgets the important consideration that the power of so throwing it depends on the condition of the market. When the demand is rising, or even stationary if steady, the tax may be thrown on the consumer; when the market is falling, or is fluctuating, the trader is unable so to throw it, and he must either pay it himself or quit the trade.

3. Taxes on wages must be paid by the rise of wages a good deal higher than the tax; the tax is not even advanced in the first instance by the labourer, but by his employer, who must lay it on goods, or deduct it, if a farmer, from rent. Hence the consumer or the landlord must always pay such taxes. The French taille was charged on labourers as well as farmers, and produced great evils. In Bohemia artificers paid a tax of ten pounds a year in the highest class, and so down to two pounds ten shillings

in the lowest. The emoluments of office-bearers if so taxed do not fall under the same rule, as the competition is not open. The tax on these falls on the officer.

4. The taxes intended to fall on all the three, funds, rent, profits and wages, indiscriminately, are capitation taxes, and those on consumable commodities.

(1.) Poll-taxes are utterly unjust if they be not apportioned to fortune; even then a great injustice must take place, and a yearly inquisition is necessary, as a man's fortune is constantly varying. If they are, as our poll-tax of William III.'s time, laid on rank, they are manifestly unequal. In France the poll-tax was laid on the higher orders by a tariff according to rank; on the lower and middle classes it was levied according to property, and subjected the people to a severe inquisition. In so far as the taxes fall on the lower orders they are levied on wages, and liable to the objections stated to those imposts. The difficulties of a poll-tax being applied to expenditure or income gave rise to the taxes on consumable commodities.

(2.) These commodities are either necessaries or luxuries. Taxes on the former would be perfectly unequal if their incidence was ultimately what it is intended to be in the first instance; but they are really taxes on labour, and must fall on the employer, not on the workman, the employer laying them on the landlord or the consumer. Those on luxuries are not so transferred, even those on the luxuries of the poor. Thus the duties on beer and tobacco do not raise wages, nor materially diminish the power of bringing up a family; nor do they necessarily raise the price of any except the taxed commodities. The taxes on the four necessaries, salt, leather, soap and candles,

affect in some small degree the wages of labour; however, the salt-tax, now repealed (somewhat hastily, by the efforts of party,) pressed so very lightly that its loss has been pretty generally lamented, and it certainly yielded to the clamour against its disproportion to the price of the article, and its requiring so many persons to collect it. Dr. Smith, however, condemns much more strongly two other measures which operate as taxes on the mere necessaries of life, and yield no revenue; the bounty on exportation of corn, and the protecting duties on the importation of that and meat. But he considers these as clearly tending to raise the price of labour, and consequently regards their repeal as sure to lower wages; so that the advocates of that repeal are prevented from quoting his authority because they always deny this tendency of the measure, or at least have always denied it since the working-classes hearing the arguments originally advanced for the repeal, from its being expected to lower wages, plainly indicated their aversion to the change. Dr. Smith shows that in other countries a high direct tax is imposed on flour, and even on bread, instancing Holland, where it was supposed to make the money price of bread double in the towns; the country inhabitants paying a poll-tax in lieu of it. The taxes on luxuries fall pretty equally on the whole people, according to their consumption. The great bulk of them is paid by the inferior and most numerous classes, but no rise of wages being caused by this payment, the burthen remains where it first falls. Dr. Smith strongly recommends the repeal of beer-taxes, and substituting malt-taxes instead; this has since been so far effected that beer is no longer directly taxed. But these taxes especially, on the upper

classes, do not fall in proportion to income, for they are proportioned to expenditure only, which varies much more in the higher classes than in the middle and lower ranks. Absentees, too, pay no such taxes, and accordingly Dr. Smith is an advocate for absentee taxes, giving Ireland as an example of the effects of persons being non-resident on their estates, and wholly forgetting that an Irish family residing in England contributes to the revenue by which Ireland is governed and defended, as much as a Scotch family living in London does to the government and defence of Scotland; or a Yorkshire family to that of Yorkshire. He shows, however, very clearly that all taxes upon consumable commodities sin against the fourth maxim; they keep and take more from the people than almost any others, creating a number of excise and customs officers, by raising prices and discouraging consumption, by vexatious prosecutions for smuggling, and by vexatious visits of officers. He here discusses the *alcavala*, or tax on sales of all kinds, in Spain, at first of ten and even fourteen per cent., and afterwards of six per cent., and a similar tax of three per cent. on all contracts in the Spanish kingdom of Naples. He institutes an interesting comparison between the old system of taxation in France, and that of England, giving the clear advantage to the latter.

Upon the whole it must be admitted, that the long chapter on taxation, (one of the longest, having 153 pages,) though, from the variety of the facts brought together, it is exceedingly entertaining, is less instructive than any other part of the 'Wealth of Nations;' because the principles are not very fully and carefully discussed, because the whole operation of the different taxes de-

scribed is not accurately traced, and because, therefore, the important point of their ultimate incidence is not accurately and satisfactorily pursued and explained. Some of the most important taxes are very slightly touched upon, and the subject of an income-tax is very imperfectly handled. The doctrine of the Economists of a single tax, *impôt foncière*, being substituted for all others, is rather indirectly treated than fully and authoritatively exposed, while so great an error claimed ample refutation; and the manifest fairness as well as advantage of so distributing taxes, as to give every variety to them, and thus to make their ultimate incidence as universal as possible, and yet as far as possible proportionate to the means of payment, is not at all dwelt upon, hardly touched.

iii. In the early stages of society and of government, the Sovereign always making provision for extraordinary occurrences, used to amass out of his annual income, either accruing from property or obtained by taxes, savings which formed a treasure in course of time. Even as far down as the early part of the eighteenth century, the Prussian treasure enabled Frederic II. to carry on successful wars almost as much as the disciplined army, to which he succeeded from his father. But in our times extraordinary emergencies are met by borrowing; and all Governments are more or less in debt, many of them heavily indebted. It is much easier for the Government of a commercial country to raise loans than for any other, because capitalists are ever to be found able and willing to advance money on the public security. For the most part these loans have at first been personal, that is, on the general credit of the Government; afterwards when

that was exhausted, the lenders required security, and branches of the public revenue were mortgaged for repayment of the loans. The unfunded debt of this country belongs to the former class, the funded to the latter. The convenience of raising supplies by loan is obvious; but its mischievous consequences are as manifest, and they very far counterbalance its advantages. Were all supplies required for a war to be raised by taxes within the year, or were this the general rule, then would the reluctance to engage in war, and the readiness to make peace after the war had been begun, be incalculably increased and universally diffused; and a loan might always be resorted to as an exception to the rule when public feelings were directed against continuing a war absolutely necessary for the honour, that is, for the existence of the State. These I place as synonymous ideas, because no war, however short, can ever be beneficial on a calculation of profit and loss; and thus only those wars are justifiable on sound policy which are required by the necessity of averting national disgrace, and are entered into for the national independence, placed in imminent peril by submitting to insult, as a man's whole fortune is by consenting to pay money under a threat, or submitting to any other extortion. But for this consideration no one would defend an action, or sue a debtor for a small sum of money, even if his adversary admitted himself to be in the wrong.

The payment, or the escape from the payment of debts, forms an important subject of consideration in this discussion. Generally speaking, the latter course has been taken when the burthen became heavy. The most common expedient, the most hurtful, and the

most disgraceful, has been tampering with the coin. This has been done in two ways,—one by raising its denomination, making, for instance, every pound be called two pounds; the other, by debasing it with alloy: and these two expedients differ only in the form,—the one being an act of open violence, the other an act of secret fraud; but both have the effect of cheating all creditors, not only those of the State, but those of private debtors, to the amount of the difference between the two nominal values in the one case, and the two real values in the other. Most countries have had recourse to one or both of these expedients, and it is of ancient origin; for the Romans had first by one and then by the other expedient, before the end of the second Punic war, made the coin worth nominally two-and-twenty times more than it originally was.

Incited by a view of the dangers of taxation, perpetuated by public debts, Dr. Smith strongly recommends the increase of such taxes as are most according to principle, and fall in with the four general maxims already stated; but above all, he recommends in what he admits to be a kind of "New Utopia," but not more useless and chimerical than "the old one," a general union of the whole empire, by giving both Ireland and all the colonies representatives, and thus making all parts of our dominion contribute to a fund for paying off the debt which was contracted for the government and the defence of them all. This plan, with its details, closes the work. The recommendation as regards Ireland has been successfully adopted and carried into execution. It was soon made clear by the events of the American war that no such incorporation of the distant provinces could be

effected. Mr. Burke, in a speech on conciliation with America, adverted to such a plan and said, "A great flood stops me in my course. *Opposuit natura.* I cannot remove the eternal barriers of the creation."* No representative Government ever can be maintained, when the delegate and his constituents live on the opposite shores of the Atlantic.

Having now finished the analytical view of this great work, the opinion may, in conclusion, be expressed, which all men are now agreed in entertaining of its prodigious merits. It may truly be said to have founded the science of Political Economy, as it exists in its new and greatly improved form. Many preceding authors had treated different branches of the subject; some, as we have seen in the introduction to this Life, had, before Dr. Smith's time, treated several of those branches upon the sound and rational principles which he applied to economical questions. Systematic treatises were not wanting which professed to embrace the whole as a science; and of these the most extensive and most valuable was Sir James Stewart's. But the 'Wealth of Nations' combines both the sound and enlightened views which had distinguished the detached pieces of the French and Italian Economists, and above all, of Mr. Hume, with the great merit of embracing the whole subject, thus bringing the general scope of the principles into view, illustrating all the parts of the inquiry by their combined relations, and confirming their soundness in each instance by their application to the others. The copiousness of

* Works, iii., 91.

the illustrations keeps pace with the closeness of the reasoning; and wherever the received prejudices of lawgivers are to be overcome, or popular errors to be encountered, the arguments, and the facts, and the explanations are judiciously given with extraordinary fulness, the author wisely disregarding all imputations of prolixity or repetition, in pursuit of the great end of making himself understood, and gaining the victory over error. The chapter on the Mercantile System is an example of this; but the errors of that widely prevailing theory and its deeply-rooted prejudices are also encountered occasionally in almost every other part of the work.

It is a lesser, but a very important merit, that the style of the writing is truly admirable. There is not a book of better English to be any where found. The language is simple, clear, often homely like the illustrations, not seldom idiomatic, always perfectly adapted to the subject handled. Beside its other perfections, it is one of the most entertaining of books. There is no laying it down after you begin to read. You are drawn on from page to page by the strong current of the arguments, the manly sense of the remarks, the fulness and force of the illustrations, the thickly strewed and happily selected facts. Nor can it ever escape observation, that the facts, far from being a mere bede-roll of details unconnected with principle and with each other, derive their whole interest from forming parts of a whole, and reflecting the general views which they are intended to exemplify or to support.

This admirable work has received the aid of several learned and able commentators, of whom Professor

Macculloch is, beyond all question, the first in this country, and M. de Garnier abroad. The edition of the former is a book of great value, and like his excellent treatise on Political Economy in the 'Encyclopædia Britannica,' ought to be in the hands of every one who would study this science with success.*

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* The editions of Dr. Smith's works referred to in this Life are, 'Moral Sentiments,' London, 1792, and 'Wealth of Nations,' London, 1802; being the seventh of the former, and the tenth of the latter.

APPENDIX.

I. Economists and Dr. Smith.

The two leading opinions which divide political inquirers upon the sources of national wealth, are those of the Economists and of Dr. Smith. We purpose here to exhibit a concise view of the objections to which both of these doctrines are eminently liable. As the general principle of a distinction between productive and unproductive labour is recognized by Dr. Smith,—as we conceive his theory to be extremely inconsistent with itself, and consider it to be an imperfect approximation to that of the Economists, we shall begin with a short examination of the principle on which it depends. That eminent writer divides labourers into two classes; those who, by adding to the value of some raw material, or by assisting in the increase of their quantity, realize or fix in a vendible commodity the effects of their exertions; and those whose labour leaves nothing in existence after the moment of exertion, but perishes in the act of performance. The former he denominates *productive*, the latter *unproductive* labourers; not meaning thereby to undervalue the exertions of many useful kinds of work performed by the unproductive order, but merely asserting that they do not augment the *wealth* of the community. Thus, the work of the farm-servant, or manufacturing labourer, is fixed in a useful commodity; the work of a menial servant perishes with the motion of his hands, and adds to the value of nothing. A man grows rich by employing a number of the former; he ruins himself by keeping a multitude of the latter.

To begin with this illustration. The case of the menial

servant must not be compared with that of the labourer employed in farming or manufactures. The menial is employed by the *consumer*, and for his own use exclusively; the farm-servant and journeyman are employed by another party, by whom the consumer is supplied. The former is, properly speaking, in the predicament of a commodity bought or hired for consumption or use; the latter rather resembles a tool bought or hired for working withal. But, at any rate, there is no such difference as Dr. Smith supposes between the effects of maintaining a multitude of these several kinds of workmen. It is the extravagant quantity, not the peculiar quality of the labour thus paid for, that brings on ruin. A man is ruined if he keeps more servants than he can afford or employ, and does not let them out for hire,—exactly as he is ruined by purchasing more food than he can consume, or by employing more workmen in any branch of manufactures than his business requires, or his profits will pay.

But it may be observed, in general, that there is no solid distinction between the effective powers of the two classes whom Dr. Smith denominates productive and unproductive labourers. The end of all labour is to augment the wealth of the community; that is to say, the fund from which the members of that community derive their subsistence, their comforts and enjoyments. To confine the definition of wealth to mere subsistence is absurd. Those who argue thus admit butcher's meat and manufactured liquors to be subsistence; yet neither of them are necessary; for if all comfort and enjoyment be kept out of view, vegetables and water would suffice for the support of life; and by this mode of reasoning the epithet of *productive* would be limited to the sort of employment that raises the species of food which each climate and soil is fitted to yield in greatest abundance, with the least labour;—to the culture of maize in some countries; of rice in others; of potatoes, or yams, or the bread-fruit tree in others: and in no country would any *variation* of employment whatever be consistent with the definition. According to this view of the question, therefore, the menial servant, the judge, the soldier and the buffoon, are to be ranked in the same class with the husbandmen and manu-

facturers of every civilized community. The produce of the labour is, in all these cases, calculated to supply either the necessities, the comforts, or the luxuries of society; and that nation has more real wealth than another, which possesses more of *all* those commodities. If this is not admitted, then we can compare the two countries only in respect of their relative shares of articles indispensably requisite, and produced in greatest abundance, considering the soil and climate of each: and, as nothing which is not necessary is to be reckoned valuable, a nation wallowing in all manner of comforts and enjoyments is to be deemed no richer than a horde fed upon the smallest portion of the cheapest grain, or roots and water, which is sufficient to support human life.

But it is maintained that, admitting the wealth of a community to be augmented by the labour of those whom Dr. Smith denominates unproductive, still they are in a different predicament from the productive class, inasmuch as they do not augment the exchangeable value of any separate portions of the society's stock—neither increasing the quantity of that stock, nor adding to the value of what formerly existed. To this, however, it may be replied, that it appears of very little consequence whether the wants of the community are supplied directly by men, or mediately by men with the intervention of matter—whether we receive certain benefits and conveniences from those men at once, or only in the form of inanimate and disposable substances. Dr. Smith would admit that labour to be productive which realized itself in a stock, though that stock were destined to perish the next instant. If a player or musician, instead of charming our ears, were to produce something which, when applied to our senses, would give us pleasure for a single moment of time, their labour would be called productive, although the produce were to perish in the very act of employment. Wherein, then, lies the difference? Merely in this—that we must consume the one produce at a certain time and place, and may use the other in a latitude somewhat, though but little, more extensive. This difference, however, disappears altogether, when we reflect that the labour would still be reckoned productive which should give us a tangible equi-

valent, though it could not be carried from the spot of its production, and could last only a second in our hands upon that spot. The musician, in reality, affects our senses by modulating the air; *i. e.*, he works upon the air, and renders a certain portion of it worth more than it was before he manufactured it. He communicates this value to it only for a moment, and in one place; there and then we are obliged to consume it. A glassblower, again, prepares some metal for our amusement or instruction, and blows it up to a great volume. He has now fixed his labour to a tangible commodity. He then exchanges it, or gives it to us, that we may immediately use it; *i. e.*, blow it until it flies to shivers. He has fixed his labour, however, we say, in a vendible commodity. But we may desire his further assistance—we may require him to use it for our benefit; and, without any pause in his process of blowing, he bursts it. This case approaches as nearly as possible to that of the musician; yet Dr. Smith maintains that the latter is a different kind of labour from the former. Nay, according to him, the labour of the glassblower is productive, if he spoils the process, and defeats the end of the experiment, by pausing, and giving into unskilful hands the bubble before it bursts. But if he performs the whole of that instructive operation, by contemplating which Sir Isaac Newton was taught the nature of colour, his labour must be denominated unproductive!

But it is not fair to deny that the class called unproductive fixes its labour in some existing commodity. First, we may observe that no labour, not even that of the farmer, can lay claim to the quality of actually *adding* to the stock already in existence: man never creates; he only modifies the mass of matter previously in his possession. But, next, the class alluded to does actually, like the class termed unproductive, realize its labour in an additional value conferred upon the stock formerly existing. The only difference is, that instead of working upon detached portions, this class operates upon the stock of the community in general. Thus, the soldier renders every portion of the stock more valuable by securing the whole from plunder; and the judge, by securing the whole from injury. Dr. Smith would allow that man to be a pro-

ductive labourer who should manufacture bolts and bars for the defence of property. Is not he also, then, a productive labourer, who protects property in the mass, and adds to every portion of it the quality of being secure? In like manner, those who increase the enjoyments of society, add a value to the stock previously existing; they furnish new equivalents for which it may be exchanged; they render the stock worth more, *i. e.*, exchangeable for more—capable of commanding more enjoyments than it formerly could command. The stock of the community is either that part which is consumed by the producer, or that part which he exchanges for some object of desire. Were there nothing for which to exchange the latter portion, it would soon cease to be produced. Hence the labour that augments the sum of the enjoyments and objects of desire for which this portion may be exchanged, is indirectly beneficial to production. But if this portion destined to be exchanged, is already in existence, the labour which is supported by it, and which returns an equivalent to the former owner, by the new enjoyments that it yields him, must be allowed to add a value directly to the exchangeable part of the stock.

It appears peculiarly inconsistent in Dr. Smith to deny that labour can add to value by its general operation on the stock of the community, and on the fund of equivalents, when we find him frequently reckoning things by other than physical means, measuring them by other standards than actual bulk and quantity—nay, counting their price in money when no money can be exchanged for them. He approaches often nearer than any assignable distance to the doctrines which I have been explaining. Thus he more than once, but particularly in the inquiry concerning taxation, (Book vi. chap. 2,) when mentioning the trouble or annoyance which certain things occasion, says they may be estimated at the sum any one would willingly give to be rid of them, and he considers the impost which is levied by means so vexatious as increased in its amount by that sum. Why not consider the sum also which any one would give to secure his property from the risk of an invasion, or of pillage in a riot, as increasing the value of that property? Now the obtaining this security, is

the service which Government renders to the owner of the property by defence and police; it is the service for which their wages are paid to soldiers, and magistrates, and police officers. Can we then, on Dr. Smith's own view, deny the additions made to the stock of the community by these labourers, or refuse to their labour the name of productive?

In every point of view, therefore, it appears that the opinion of Dr. Smith is untenable. He has drawn his line of distinction between productive and unproductive labour in too low a part of the scale. The labour which he denominates unproductive, has the very same qualities with a great part of the labour which he allows to be productive. According to his own principles, the line should have been drawn, so as to cut off, on the one hand, the labour which apparently increases the quantity of stock, and to leave, on the other hand, all that labour which only modifies, or in some manner induces a beneficial change upon stock already in existence. In a word, his principles clearly carry him to the theory of the Economists; and, in order to be consistent, he ought unquestionably to have reckoned agriculture the *only* productive employment of capital or labour. That there is only this one doctrine tenable, in consistency with itself, has been, we conceive, sufficiently proved. We shall now consider whether there is in reality any foundation even for this distinction, which forms the basis of the theory supported by the Economists.

Whoever has honoured the foregoing observations with his attention, will speedily be satisfied that the reasonings applied to Dr. Smith's classification of labour are applicable also to the more precise and constituent doctrine of the followers of Quesnay. It is the opinion of these ingenious metaphysicians, that the labour bestowed upon the earth can alone be considered as really productive; that all other labour only varies the position or the form of capital, but that agriculture increases its net amount. That the merchant who transports goods from the spot of their abundance to the quarter where they are wanted, adds nothing to the whole stock, or to the value of the portions which he circulates, these reasoners deem almost a self-evident proposition. That

the manufacturer who fashions raw materials into useful commodities increases their value, the Economists indeed admit; but they deny that any further addition is thus made to the value of the materials than the value of the workman's maintenance while employed in the manufacture.

It seems obvious, at first sight, to remark, that, according to their own principles, these theorists have committed one error. They have ranged all labour, except that of the husbandman, in the same class; while they have virtually acknowledged that as great a difference subsists between the two members of that division, as between either of them and the other division. For surely, the merchant, who adds, according to them, no value to any material, is as much to be distinguished from the manufacturer who does add the value of his maintenance to the raw produce, as the manufacturer is to be distinguished from the husbandman, whose labour returns a net profit over and above the price of his maintenance. This criticism is almost decisive, in a discussion which, it must be admitted on all hands, resolves into a question of classification. But the error of the Economists is still more fundamental.

There is no essential difference between the powers of man over matter, in agriculture, and in other employments. It is a vulgar error, to suppose that, in the operations of husbandry, any portion is added to the stock of matter formerly in existence. The farmer works up the raw material, *i. e.*, the manure, soil and seed, into grain, by means of heat, moisture, and the vegetative powers of nature, in whatever these may consist. The manufacturer works up his raw material by means of certain other powers of nature. Dr. Smith, however, who states the doctrine of the Economists in its greatest latitude, (Chap. V., Book II., Vol. II., p. 52, 8vo. edition), asserts, that, in agriculture, nature works with man, and that the rent is the wages of her labour; but that, in manufactures, man does every thing. But, does not nature work with man, in manufacture as well as in agriculture? If she works with him in forming a handful of seed into a sheaf of flax, does she not also work with him in fashioning this useless sheaf into a garment? Why draw a line between the

two effects, when a person can no more clothe himself with an unwrought sheaf of the produce than with an unsown handful of the seed? Why draw a line between the two operations, when the workman can no more change the sheaf into a garment without the aid of those powers which we denominate nature, cohesion, divisibility, heat and moisture, than the farmer can convert the seed into a sheaf without the vegetative powers of heat, moisture, and cohesion? If, instead of flax, we suppose the sheaf to be of barley, the analogy will be still more apparent. The brewer or distiller is certainly a productive labourer; yet the changes which he effects are as little the direct work of his hands, as the multiplication of the seed in the field. The conversion of that substance into an intoxicating beverage, is the work of nature, as well as its growth in the harvest; and fermentation is as great a mystery as vegetation. If the rent of land, again, may be called the wages of nature, in agricultural operations, the net profits of manufacturing stock may be termed her wages in our operations upon raw produce; meaning, by net profits, that part of the gross profit which remains after paying the labourer who works, and him who superintends; that is, after deducting wages, and the profit received by a man trading on borrowed capital: for we must always keep in view a consideration, the omission of which, we will venture to assert, has misled almost all political inquirers, that the rent of land is, properly speaking, the net profit of stock advanced by the landlord, and that every thing which the farmer receives over and above the wages of his labour, is the profit of another stock, which may be borrowed as well as the land; and in this case his whole profit resolves into wages—the case of a trader having no capital whatever. In both cases, there is a clear gain; in both it is obtained in the same way; in both distributed among the same classes.

Let us, however, take an example or two, for the purpose of comparing more closely the productive with the unproductive kinds of labour. The person who makes a plough is, according to the Economists, an unproductive labourer, but he who drives it is a productive labourer. In

what predicament, then, is the labourer who makes a hedge round a field for its protection, or a ditch for draining it? This operation, because it is called farm-work, is admitted by the Economists to be productive. But wherein does it differ from the plough manufacture? Both are alike subservient and necessary to the operations of ploughing and reaping; both are alike performed by persons who do not raise the produce that feeds them;—and both are alike performed upon some materials produced from the earth by other labour. If the plough were made in a bungling manner by farm-servants in the out-houses of the farm, we imagine the manufacture would of necessity fall under the head of productive labour, as well as the work of hedging and ditching. Again—Capital employed by the corn-merchant in collecting and circulating grain, is most unproductively employed, according to the Economists. But the capital employed in collecting seed in a barn, carrying it from thence to the field, and returning the crop at harvest, is employed in the most productive manner possible. Can it be maintained that there is any difference whatever between these two cases, necessarily placed by the theory of the Economists at the opposite extremes of their scale? If the corn-merchant lived on the ground of the farmer, and if the farmer, from this convenient circumstance, were enabled to sell all his grain without having any barns or granaries, certain of supplying himself at his own door next seed-time, the Economist would be forced to allow that the capital of the corn-merchant, in so far as it assisted the farmer, was productively employed.—Wherein lies the difference?—And these observations are applicable to every case of every manufacture, and every species of commerce whatever. They apply to those kinds of employment which are subservient to the purposes of comfort and enjoyment, as well as to those which administer to our necessary wants; for we showed above, that there is no possibility of drawing a line between the cases, consistently with principles admitted even by the Economists themselves. The foundation of all these misapprehensions is evidently laid in a neglect of the great principle of the division of labour. In

whatever part of a community the labour connected with agriculture, immediately or remotely, is performed, the subdivision of the task renders it more productive than if it were carried on upon the farm itself; and, to deny the same properties to this labour, on account of its subdivision and accumulation in different quarters, is little less than a contradiction in terms.

There is only one view of the Economical theory which remains to be taken: it is that most ingenious argument by which the followers of Quesnai attempt to prove, that manufacturing labour only adds a value equal to its own maintenance. The above remarks may indeed suffice for the refutation of this doctrine, but its peculiar demonstration merits separate attention.* The works of the artisan, the Economists maintain, are in a very different predicament from the produce of the agricultural labourer. Multiply the former beyond a certain extent, and either a part will remain unsold, or the whole will sell at a reduced price. Multiply the latter to any extent, and still the same demand will exist, from the increased number of consumers, whom it will maintain. The labour of the artisan is therefore limited to a particular quantity; this quantity it will always nearly equal, but never exceed; and the amount is determined by the competition of different artists on the one hand, and the fixed extent of the demand on the other. The labour of the husbandman has no such limits. The extension of his productions necessarily widens his market. The price of manufactures will therefore be reduced to the value of the raw material, of the workman's maintenance, and of his master's maintenance; while that of agricultural produce, having no such limit, leaves always a net profit over and above the farmer's maintenance.

In answer to this very subtle argument, we may remark, that it proceeds on a total misconception of the principle of population. It is absurd to suppose that the mere augmentation of agricultural produce extends the demand for it, by increasing the population of the community. If the lowest

* See this reasoning stated repeatedly in *Dialogue 2de, Physiocratie*, p. 571.

means only of subsistence are considered, and if men will be contented to possess only the simplest food, without any raiment, then, no doubt, an increase of grain and roots may increase the numbers of the consumers. But is it not evident that men require more than the mere necessaries of life, and that even those necessaries are in part the production of manufacturing labour? Does not a person, in forming his estimate of a competency, take into the account articles of manufacture as well as husbandry, furniture, clothes, and even luxuries—gratifications as well as meat and drink? The mere augmentation of those simple necessaries will never sensibly increase the number of the consumers, any more than the mere augmentation of articles of comfort and luxury. An increase in the production of the one class of commodities will operate exactly as powerfully on population, as an increase in the production of the other class. In fact, an increase of either may somewhat affect the numbers of the consumers; but in order to produce any considerable augmentation of those numbers, the increase of both species of produce must go on together. This argument, then, only leads us by a new, and certainly an unexpected road, to an additional conclusion in favour of the theory that utterly denies all distinction between any of the applications of capital and industry, which are subservient to the wants and enjoyments of man.

The reasoning in which we have been engaged, will probably be deemed sufficient to authorize several positive inferences with respect to the nature and sources of national wealth. We trust that enough has been said to expose the inaccuracy of drawing any line between the different channels in which capital and labour may be employed—of separating, with Dr. Smith and his followers, the operations of agriculture, manufactures, and commerce, from those arts where nothing tangible is produced or exchanged—or of placing, with the Economists, the division somewhat higher, and limiting the denomination of *productive* to agricultural employment alone. It may safely be concluded, that all those occupations which tend to supply the necessary wants, or to multiply the comforts and pleasures of human life, are equally

productive in the strict sense of the word, and tend to augment the mass of human riches, meaning, by riches, all those things which are necessary, or convenient, or delightful to man. The progress of society has been attended with a complete separation of employments originally united. At first, every man provided for his necessities as well as his pleasures, and for *all* his wants as well as *all* his enjoyments. By degrees, a division of those cares was introduced; the subsistence of the community became the province of one class, its comforts of another, and its gratifications of a third. The different operations subservient to the attainment of each of these objects, were then intrusted to different hands; and the universal establishment of barter connected the whole of the divisions and subdivisions together; enabled one man to manufacture for all, without danger of starving by not ploughing or hunting; and another to plough or hunt for all, without the risk of wanting tools and clothes by not manufacturing. It has thus become as impossible to say exactly who feeds, clothes, and entertains the community, as it would be impossible to say which of the many workmen employed in the manufacture of a pin is the actual pin-maker, or which of the farm-servants produces the crop. All the branches of useful industry work together to the common end, as all the parts of each branch co-operate to its particular object. If you say that the farmer feeds the community, and produces all the raw materials which the other classes work upon; we answer, that unless those other classes worked upon the raw materials, and supplied the farmer's necessities, he would be forced to allot part of his labour to this employment, while he forced others to assist in raising the rude produce. In such a complicated system, it is clear that all labour has the same effect, and equally increases the whole mass of wealth. Nor can any attempt be more vain than theirs who would define the particular parts of the machine that produce the motion, which is necessarily the result of the whole powers combined, and depends on each one of the mutually connected members. Yet so wedded have those theorists been to the notion, that certain necessary kinds of employment are absolutely unproductive, that a writer of no less name than Dr. Smith has

not scrupled to rank the capital sunk in the public debt, or spent in warfare, in the same class with the property consumed by fire, and the labour destroyed by pestilence. He ought surely to have reflected, that the debts of a country are always contracted, and its wars entered into, for some purpose either of security or aggrandizement; and that stock thus employed must have produced an equivalent, which cannot be asserted of property or population absolutely destroyed. This equivalent may have been greater or less; that is, the money spent for useful purposes may have been applied with more or less prudence and frugality. Those purposes, too, may have been more or less useful; and a certain degree of waste and extravagance always attends the operations of funding and of war. But this must only be looked upon as an addition to the necessary price at which the benefits in view are to be bought. The food of a country, in like manner, may be used with different degrees of economy; and the necessity of eating may be supplied at more or less cost. So long as the love of war is a necessary evil in human nature, it is absurd to denominate the expenses unproductive that are incurred by defending a country; or, which is the same thing, preventing an invasion, by a judicious attack of an enemy; or, which is also the same thing, avoiding the necessity of war by a prudent system of foreign policy. And he who holds the labour of soldiers and sailors and diplomatic agents to be unproductive, commits precisely the same error as he who should maintain that the labour of the hedger is unproductive, because he only protects, and does not rear the crop. All those kinds of labour and employments of stock, are parts of the system, and all are *equally* productive of wealth.*

* See Book II. chap. III. 'Wealth of Nations.' (Vol. II., page 25, 8vo. edition.) The terms *productive* and *unproductive* are, in the argument of some of the Economists, and in parts of Dr. Smith's reasonings, so qualified, as to render the question a dispute about words, or at most about arrangement. But this is not the case with many branches of both those theories, and especially with the position examined in the text. The author actually remarks how much richer England would now be, had she not waged such and such wars. So might we estimate how many more coats we should have, had we always gone naked. The remarks here stated, may with equal justice be applied to a circumstance in the Theory of the Balance of

II. Capital.

By capital, when used generally, we understand the whole of the material world which man can appropriate, as well as those talents, natural or acquired, which are the springs of his exertions. In this sense of the word, it signifies all property material and mental, or every thing valuable to man. Among other things, it clearly comprehends land. But sometimes we speak of capital, in opposition to land; and, in this case, it comprehends every thing valuable, except the ground; for it certainly includes all the parts and productions of the soil which are severed from it. In this sense, the division nearly resembles the legal distribution of property into real and personal. Both these definitions of capital are used repeatedly, and with equal frequency, by every writer on political economy.

If capital is contradistinguished from land, the separation is made by a most indefinite and obscure boundary. Canals, roads and bridges, are as much a part of capital, as any portable machines, fashioned out of the produce or parts of the soil. The same may be said of fences, drains, footways, and in general of all the ostensible monuments of labour in an improved farm. But is not the soil itself, also, referable to the very same class, after it has been worked up with manure and composts, so as to be highly fertilized? Is not the whole surface of an improved farm, therefore, to be considered as capital, rather than as land? And when a person buys a hundred acres of improved land, how can he say what part of the price is paid for land, and what part for capital? We speak indeed of capital vested in land, and use the phrase,

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Trade. In stating the proportion of exports to imports, it has justly been observed, that no notice can ever be taken, in Custom-house accounts, of money remitted for subsidies, or for the payment of our troops and fleets abroad. But it has very inaccurately been added, that these sums are so much actually sent out of the country without an equivalent. In fact, the equivalent is great and obvious, although of a nature which cannot be stated in figures among the imports. The equivalent is all the success gained by our foreign warfare and foreign policy—the aggrandizement and security of the State, and the power of carrying on that commerce, without which there would be neither exports nor imports to calculate and compare.

until we actually think there is such a thing as adding the capital to land; whereas the whole meaning of the expression is, that capital of one kind or other is given in exchange for land, or that our property has become land, instead of some other valuable commodity—or, according to what has just now been defined, that one kind of capital has been exchanged for another. If it is said, that capital is that in which labour has been fixed and realized, either by accumulation or by change of form; then, it is very obvious, that land, in the most extensive sense of the word, must become capital in order to be useful; and that many things, usually reckoned capital, as the wild produce which is raised by nature without human assistance, belongs to the class of land, and not to that of stock. But a difference is established by some, especially by Dr. Smith, between capital and the other parts of stock; capital being, according to them, that part which brings in a revenue. This idea clearly appears, by the whole of the illustrations given of it, to have arisen from the fundamental error of considering nothing as productive which does not yield a tangible return, and of confounding use with exchange. For, may not a man live upon his stock, that is, enjoy his capital, without either diminishing or exchanging any part of it? In what does the value, and the real nature of stock reserved for immediate consumption, differ from stock that yields what Dr. Smith calls a revenue or profit? Merely in this—that the former is wanted and used itself by the owner; the latter is not wanted by him, and therefore is exchanged for something which he does want. There is surely no other meaning in the idea of profit or revenue, but this: and as the profit of that part of stock which is exchanged, and which the adherents of this opinion denominate capital, consists merely in the use of those things obtained in return—so, the profit of the other part of stock, the portion reserved for consumption, is the use to which it is immediately subservient. According to Dr. Smith, there is some difference between revenue and enjoyment; and that part of a man's property yields him no profit, which is most useful and necessary to him, by which he can support and enjoy life without the necessity of any operation of barter.

Labour, on the other hand, is so far different in the mode of its subserviency to our enjoyments, that it can in no way be ranked in the same class, either with capital or with land. Labour is applicable to both land and capital. It is the means of rendering them useful, or of increasing their utility. It is truly the origin and source of wealth; but is, in no sense of the word, wealth itself—unless, indeed, we conceive the pleasure of some kinds of exertion to be a use of labour analogous to the enjoyment of riches. Wealth may be said to be every thing from which man immediately derives the supply of his wants and desires. Its component parts are as various as those wants and desires, though it is, no doubt, susceptible of various general divisions, liable to no just exceptions in point of accuracy. Thus, it may be ranged in the two classes of matter and mind, or property and talents; and property may be divided into animate and inanimate, or the lifeless and the living, things over which man has dominion. By a combination of those component parts of wealth—by the operation of talents on property, and by a combination of the component parts of property—by the operation of living powers upon inert matter, man is enabled to increase the whole of his possessions, and to augment the sum of his enjoyments. In by far the greater number of instances, some exertion of labour is necessary to profit by his possessions; but this is not universally the case, unless we go so far as to term that exertion labour, which consists in the very act of enjoyment, or of use; for it would scarcely be correct, to consider the eating of wild fruits on the tree as the labour paid for the acquisition of them; it is rather the enjoyment of them—and has nothing in it analogous to the previous exertion required to procure similar fruits by culture, and which must be followed by the same exertion in using them.

III.

I have now before me a number of Dr. Smith's Letters, written when at Oxford, between the years 1740 and 1746, to his mother: they are almost all upon mere family and

personal matters; most of them indeed upon his linen and other such necessaries, but all show his strong affection for his parent. Writing 2nd July, 1744, he says:—

"I am quite inexcusable for not writing to you oftener. I think of you every day, but always defer writing till the post is just going, and then sometimes business or company, but oftener laziness, hinders me. Tar water is a remedy very much in vogue here at present for almost all diseases. It has perfectly cured me of an inveterate scurvy and shaking in the head. I wish you'd try it. I fancy it might be of service to you." In another letter he says he had had the scurvy and shaking as long as he remembered anything, and that the tar water had not removed those complaints.

29th November, 1743.—"I am just recovered of a violent fit of laziness, which has confined me to my elbow-chair these three months."

It should seem as if his habitual absence had assumed a marked form at that time. The description resembles that of a hypochondriacal malady. He was then only twenty years old.

I have likewise had access to some letters which he wrote afterwards to Lord Hailes, and, through the kindness of the Royal Society of Edinburgh, to such of his letters as are in the papers of David Hume.

The following letter to Lord Hailes, dated 5th March, 1769, gives the germ of some of his speculations, but it is also curious as giving his very strong and very rash opinion against the decision of the great Douglas Cause.

"My Lord, Kirkaldy, March 5, 1769.

"I should now be extremely obliged to your Lordship if you would send me the papers you mentioned upon the prices of provisions in former times. In order that the conveyance may be perfectly secure, if your Lordship will give me leave, I shall send my own servant sometime this week to receive them at your Lordship's house at Edinburgh. I have not been able to get the papers in the cause of Lord Galloway and Lord Morton. If your Lordship is possessed of them it would likewise be a great obligation if you could

send me them. I shall return both as soon as possible. If your Lordship will give me leave I shall transcribe the MSS. papers: this, however, entirely depends upon your Lordship.

"Since the last time I had the honour of writing to your Lordship, I have read over with more care than before the Acts of James Ist, and compared them with your Lordship's remarks. From these last I have received both much pleasure and much instruction. Your Lordship's remarks will, I plainly see, be of much more use to me than I am afraid mine will be to you. I have read law entirely with a view to form some general notion of the great outlines of the plan according to which justice has been administered in different ages and nations; and I have entered very little into the detail of particulars of which I see your Lordship is very much master. Your Lordship's particular facts will be of great use to correct my general views; but the latter I fear will always be too vague and superficial to be of much use to your Lordship.

"I have nothing to add to what your Lordship has observed upon the Acts of James Ist. They are penned in general in a much ruder and more inaccurate manner than either the English statutes or French ordinances of the same period; and Scotland seems to have been, even during this vigorous reign, as our historians represent it, in greater disorder than either France or England had been from the time of the Danish and Norwegian incursions. The 5, 24, 56, and 85 statutes, seem all to attempt a remedy to one and the same abuse. Travelling, from the disorders of the country, must have been extremely dangerous, and consequently very rare. Few people, therefore, could propose to live by entertaining travellers; and consequently there would be few or no inns. Travellers would be obliged to have recourse to the hospitality of private families in the same manner as in all other barbarous countries; and being in this situation real objects of compassion, private families would think themselves obliged to receive them, even though this hospitality was extremely oppressive. Strangers, says Homer, are sacred persons, and under the protection of Jupiter; but no wise

man would ever choose to send for a stranger unless he was either a bard or a soothsayer. The danger, too, of travelling either alone or with few attendants made all men of any consequence carry along with them a numerous suite of retainers, which rendered this hospitality still more oppressive. Hence the orders to build hostellaries in 24 and 85. And as many people had chosen to follow the old fashion and to live rather at the expense of other people than at their own, hence the complaint of the keepers of the hostellaries, and the order thereupon in Act 56.

"I cannot conclude this letter, though already too long, without expressing to your Lordship my concern, and, still more, my indignation at what has lately passed both at London and at Edinburgh. I have often thought that the Supreme Court of the United Kingdom very much resembled a jury. The law Lords generally take upon them to sum up the evidence, and to explain the law to the other peers, who generally follow their opinion implicitly. Of the two law Lords who upon this occasion instructed them, the one has always run after the applause of the mob; the other, by far the most intelligent, has always shewn the greatest dread of popular odium, which, however, he has not been able to avoid. His inclinations also have always been suspected to favour one of the parties. He has upon this occasion, I suspect, followed rather his fears and his inclinations than his judgment. I could say a great deal more upon this subject to your Lordship, but I am afraid I have already said too much. I would rather, for my own part, have the solid reputation of your most respectable President, though exposed to the insults of a brutal mob, than all the vain and flimsy applause that has ever yet been bestowed upon either or both the other two. I have the honour to be, with the highest esteem and regard,

"My Lord,

"Your Lordship's most obliged

and obedient servant,

(Signed) "ADAM SMITH."

Another letter, dated a week later, gives what is evidently the beginning of his speculations on the price of silver, and adds as to the Douglas Cause—

"If the rejoicings which I read of in the public papers in different places on account of the Douglas Cause had no more foundation than those which were said to have been in this place, there has been very little joy upon the occasion. There was here no sort of rejoicing of any kind, unless four schoolboys having set up three candles upon the trone, by way of an illumination, is to be considered as such."

In one of his letters to Mr. Hume, from Toulouse, he complains much of the dull life he led from not having brought introductions to society. "The life (he says) which I led at Glasgow was a pleasurable dissipated life in comparison of that which I lead here. I have begun to write a book in order to pass away the time: you may believe I have very little to do." This letter is dated 5th July, 1764, and the work was plainly the 'Wealth of Nations.' The mention of it is interesting, as being the first we have of his great undertaking. I need hardly add, that from his habitual aversion to write letters, very few remain of his compared with the correspondence of most distinguished men. Afterwards he lived in all the society of Toulouse. Here is another letter of a later date on Mr. Hume's quarrel with Rousseau:—

"MY DEAR FRIEND, Paris, July 6th, 1766.

"I am thoroughly convinced that Rousseau is as great a rascal as you and as every man here believes him to be; yet let me beg of you not to think of publishing any thing to the world upon the very great impertinence which he has been guilty of to you. By refusing the pension which you had the goodness to solicit for him with his own consent, he may have thrown, by the baseness of his proceedings, some little ridicule upon you in the eyes of the Court and the Ministry. Stand this ridicule; expose his brutal letter, but without giving it out of your own hand, so that it may never be printed, and if you can, laugh at yourself, and I shall pawn my life that before three weeks are at an end, this little affair, which

at present gives you so much uneasiness, shall be understood to do you as much honour as any thing that has ever happened to you. By endeavouring to unmask before the public this hypocritical pedant, you run the risk of disturbing the tranquillity of your whole life. By letting him alone he cannot give you a fortnight's uneasiness. To write against him is, you may depend upon it, the very thing he wishes you to do. He is in danger of falling into obscurity in England, and he hopes to make himself considerable by provoking an illustrious adversary. He will have a great party, the Church, the Whigs, the Jacobites, the whole wise English nation, who will love to mortify a Scotchman, and to applaud a man that has refused a pension from the King. It is not unlikely, too, that they may pay him very well for having refused it, and that even he may have had in view this compensation. Your whole friends here wish you not to write—the Baron d'Alembert, Madame Riccoboni, Mademoiselle Riancourt, M. Turgot, &c., &c. M. Turgot, a friend every way worthy of you, desired me to recommend this advice to you in a particular manner, as his most earnest entreaty and opinion. He and I are both afraid that you are surrounded with evil counsellors, and that the advice of your English literati, who are themselves accustomed to publish all their little gossiping stories in newspapers, may have too much influence upon you. Remember me to Mr. Walpole, and believe me to be, with the most sincere affection,

"Ever yours,

"ADAM SMITH."

"P.S. Make my apology to Miller for not having yet answered his last very kind letter. I am preparing the answer to it, which he will certainly receive by next post. Remember me to Mrs. Miller. Do you ever see Mr. Townshend?"

After his return to Kirkaldy, and when engaged in his great work he thus writes—

"MY DEAREST FRIEND, Kirkaldy, June 7th, 1767.

"The principal design of this letter is to recommend to your particular attention the Count de Sarsfield, the best and

the most agreeable friend I had in France. Introduce him, if you find it proper, to all the friends of your absent friend, to Oswald and to Elliot in particular. I cannot express to you how anxious I am that his stay in London should be rendered agreeable to him. You know him, and must know what a plain, worthy, honourable man he is. I have enclosed a letter for him, which you may either send to him, or rather, if the weighty affairs of state will permit it, deliver it to him yourself. The letter to Dr. Morton you may send by the penny post.

"My business here is study, in which I have been very deeply engaged for about a month past. My amusements are long solitary walks by the sea side. You may judge how I spend my time. I feel myself, however, extremely happy, comfortable, and contented. I never was perhaps more so in all my life. You will give me great comfort by writing to me now and then, and by letting me know what is passing among my friends at London. Remember me to them all, particularly to Mr. Adams's family and to Mrs. Montague.

"What has become of Rousseau? Has he gone abroad, because he cannot contrive to get himself sufficiently persecuted in Great Britain?

"What is the meaning of the bargain that your Ministry have made with the India Company? They have not I see prolonged their Charter, which is a good circumstance. What are you going to do."*

Thinking it probable that the Dalkeith repositories might contain some letters, the present Duke of Buccleugh was kind enough, at my request, to make search, but none were found.

I have much satisfaction in adding the following letter, because it gives Dr. Smith's first impressions, which in this case proved most just ones, of a person whose virtues and amiable qualities were the theme of universal respect and esteem during her whole life, the late Duchess of Buccleugh, grandmother of the present Duke.

* Remainder of the letter obliterated.

"My dear Friend, Dalkeith House, September 18, 1767.

"Be so good as to convey the enclosed letter to the Count de Sarsfield; I have been much in the wrong for having delayed so long to write both to him and you.

"There is a very amiable, modest, brave, worthy young gentleman, who lives in the same house with you; his name is David Skeene. He and I are sisters' sons, but my regard for him is much more founded upon his personal qualities than upon the relation in which he stands to me. He acted lately in a very gallant manner in America, of which he never acquainted me himself, and of which I came to the knowledge only within these few days. If you can be of any service to him, you could not possibly do a more obliging thing to me. The Duke and Duchess of Buccleugh have been here now for almost a fortnight; they begin to open their house on Monday next, and I flatter myself will both be very agreeable to the people of this country. I am not sure that I have ever seen a more agreeable woman than the Duchess. I am sorry that you are not here, because I am sure you would be perfectly in love with her. I shall probably be here some weeks; I would wish, however, that both you and the Count de Sarsfield would direct for me as usual at Kirkaldy. I should be glad to know the true history of Rousseau before and since he left England. You may perfectly depend upon my never quoting you to any living soul upon that subject.

"I ever am, dear Sir,

"Most faithfully yours,

"Adam Smith."

The following letter relates to his unhappy determination of having all his papers destroyed.

"My dear Friend, Edinburgh, April 16th, 1773.

"As I have left the care of all my literary papers to you, I must tell you that, except those which I carry along with me, there are none worth the publishing but a fragment of a great work, which contains a history of the Astronomical Systems that were successively in fashion down to the time of Des Cartes. Whether that might not be published as a

fragment of an intended juvenile work I leave entirely to your judgment, though I begin to suspect myself, that there is more refinement than solidity in some parts of it. This little work you will find in a thin folio paper book, in my writing-desk in my book-room: all the other loose papers, which you will find either in that desk or within the glass folding doors of a bureau, which stands in my bed-room, together with about eighteen thin paper folio books, which you will likewise find within the same glass folding doors, I desire may be destroyed without any examination. Unless I die very suddenly, I shall take care that the papers I carry with me shall be carefully sent to you."

"I ever am, my dear friend,

"Most faithfully yours,

"ADAM SMITH."

"To DAVID HUME, Esq.,
of St. Andrew's Square, Edinburgh."

"MY DEAREST FRIEND, Kirkaldy, August 22nd, 1776.

"I have this moment received your letter of the 15th instant. You had, in order to save me the sum of one penny sterling, sent it by the carrier instead of the post; and (if you have not mistaken the date) it has lain at his quarters these eight days, and was, I presume, very likely to lie there for ever.

"I shall be very happy to receive a copy of your Dialogues; and, if I should happen to die before they are published, I shall take care that my copy shall be as carefully preserved as if I was to live a hundred years. With regard to leaving me the property in case they are not published within five years after your decease, you may do as you think proper. I think, however, you should not menace Strahan with the loss of any thing in case he does not publish your Work within a certain time.* There is no probability of his delaying it, and if any thing could make him delay it, it would be a clause of this kind; which would give him an honourable pretence for doing

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* This refers to the passage of Mr. Hume's will, imposing a penalty in case of not printing one of his posthumous works. See 'Life of Hume,' vol. i.

so. It would then be said that I had published, for the sake of an Establishment, not from respect to the memory of my friend, what even a Printer for the sake of the same emolument had not published. That Strahan is sufficiently zealous you will see by the enclosed letter, which I will beg the favour of you to return to me, but by the post and not by the carrier. If you will give me leave I will add a few lines to your account of your own Life; giving some account in my own name, of your behaviour in this illness, if, contrary to my own hopes, it should prove your last. Some conversations we had lately together, particularly that concerning your want of an excuse to make to Charon, the excuse you at last thought of, and the very bad reception which Charon was likely to give it, would, I imagine, make no disagreeable part of the history. You have in a declining state of health, under an exhausting disease, for more than two years together, now looked at the approach, or what you at least believed to be the approach of Death with a steady cheerfulness such as very few men have been able to maintain for a few hours, though otherwise in the most perfect health. I shall likewise, if you will give me leave, correct the sheets of the new edition of your Works, and shall take care that it shall be published exactly according to your late corrections. As I shall be at London this winter it will cost me very little trouble. All this I have written upon the supposition that the event of your disease should prove different from what I still hope it may do. For your spirits are so good, the spirit of life is still so very strong in you, and the progress of your disorder is so slow and gradual, that I still hope it may take a turn. Even the cool and steady Dr. Black, by a letter I received from him last week, seems not to be averse to the same hopes.

"I hope I need not repeat to you, that I am ready to wait on you whenever you wish to see me. Whenever you do so, I hope you will not scruple to call on me. I beg to be remembered in the kindest and most respectful manner to your Brother, your Sister, your Nephew, and all other Friends.

"I ever am,

"My dearest friend,

"Most affectionately yours,

"ADAM SMITH."

To John Home, of Ninewells.

"Dear Sir, "Dalkeith House, August 31st, 1776.

"As the Duke proposes to stay here till Thursday next, I may not have an opportunity of seeing you before you return to Ninewells; I, therefore, take this opportunity of discharging you, and all others concerned, of the legacy which you was so good as to think might, upon a certain event, become due to me by your brother's will, but which, I think, would upon no event become so, viz., the legacy of two hundred pounds sterling. I hereby therefore discharge it for ever; and least this discharge should be lost, I shall be careful to mention it in a note at the bottom of my will. I shall be glad to hear that you have received this letter, and hope you will believe me to be, both on your brother's account and your own, with great truth, most affectionately,

"Yours,

"Adam Smith.

"P. S.—I do not hereby mean to discharge the other legacy, viz., that of a copy of his works."

"Dear Sir, "Edinburgh, September 2nd, 1776.

"I was favoured with your's of Saturday, and I assure you that, on perusing the destinations, I was more of opinion than when I saw you, that the pecuniary part of it was not altered by the codicil, and that it was intended for you at all events; that my brother knowing your liberal way of thinking, laid on you something as an equivalent, not imagining you would refuse a small gratuity from the funds it was to come from, as a testimony of his friendship; and though I must highly esteem the motives and manner, I cannot agree to accept of your renunciation, but leave you full master to dispose of it which way is most agreeable to you.

"The copys of the Dialogues are finished and of the Life, and will be sent to Mr. Strahan to-morrow; and I will mention to him your intention of adding to the last something to finish so valuable a life, and will leave you at Liberty to look into the correction of the first, as it either answers your

leisure or ideas with regard to the composition, or what effects you think it may have with regard to yourself. The two copys intended for you will be left with my sister, when you please to require them; and the copy of the new edition of his works you shall be sure to receive, though you have no better title to that part than the other, though much you have to the friendship and esteem of, Dear Sir, him who is most sincerely,

"Yours,

"JOHN HOME."

Engraved by J. Brown.

LAVOISIER.

London. Henry Colburn. 1846.

LAVOISIER.

In the Lives of Black, Priestley, Watt, and Cavendish, it has been necessary to mention the claims of Lavoisier, first as a competitor with the great philosophers of the age for the honour of their discoveries, yet as an intruder among them by his attempts to shew that he had himself, though unknown to them and ignorant of their inquiries, made the same steps nearly at the same time. The history of that great man, which we are now to consider, will enable us to perceive clearly the evidence upon which the charge rests, both the proof of his having preferred those claims, and the proof that they were groundless. But it will also enable us to perceive how vast his real merits were, and how much remained his own of the discoveries which have built up the science of modern chemistry, even after all those plumes have been stript away that belonged to others.

It is a very great error to suppose that the truths of philosophy are alone important to be learnt by its students; that provided these truths are taught, it signifies little when or by whom or by what steps they were discovered. The history of science, of the stages by which its advances have been made, of the relative merits by

which each of our teachers was successively made famous, is of an importance far beyond its being subservient to the gratification even of an enlightened and learned curiosity. It is eminently calculated to further the progress which it records; it conveys peculiarly clear and discriminating ideas upon the doctrines taught, and the proofs they rest on; it suggests new inquiries, and encourages the prosecuting of new researches. It is, moreover, both a debt of gratitude to our benefactors which we should be anxious to pay by testifying our gratitude, and commemorating their fame; and the discharge of this duty has a direct tendency to excite emulation, prompting to further labours that may enlarge the bounds of science. Besides, the history of scientific achievements is the history of the human mind in its noblest exertions, of the human race in its most exalted pursuits. But it is equally clear that the whole value of this, as of every other branch of history, depends upon the diligence with which the facts are examined, the care and even the skill with which their evidence is sifted, the impartiality with which judgment is pronounced, and the accuracy with which the record is finally made up. The mere panegyric of eminent men, how elegantly soever it may be composed, must remain wholly worthless, at the best, and is capable of being mischievous, if it aims at praise without due discrimination, still more if it awards to one man the eulogy which belongs to another. Nothing can be more indispensable to the execution of the important task undertaken by the historian of science, than that he should most carefully examine the share which each of its cultivators had in the successive changes it has undergone. The greatest of these have ever felt how valuable

such titles are, and have shewn the most singular anxiety to compare and to adjust their relative claims. Of these illustrious men I have known two, Black and Watt, and I can safely say that when the question was raised of priority in discovery among either their predecessors or their cotemporaries, they were wont to be particular and minute, even to what seemed superfluous carefulness, in assigning to each his just share, very far more anxious in making this distribution than they ever shewed themselves to secure the admission of their titles in their own case. By a singular injustice of fortune these two philosophers have been treated themselves with a more scanty measure of the like justice than perhaps any of their cotemporary discoverers.* It is proposed to examine with the same minuteness the particulars in M. Lavoisier's history, upon which some controversy has at different times arisen.

Antoine Laurent Lavoisier was born at Paris, 13th of August, 1743, the son of an opulent family, his father having been a fermier-général. No expense was spared upon his education; and in the college of Mazarin, where he studied, he gained many prizes for proficiency in classical acquirements. It was, however, to the sciences that he soon devoted himself, and first to the severer ones, having made considerable proficiency in the mathematics and astronomy under La Caille, in whose observatory he studied upon leaving the college. He studied botany under Jussieu, and chemistry under Rouelle. As from

* When any reference is made to the Eloges of the French Academy, justice requires me to add that those of M. Arago form a most striking exception. They are strictly historical, as well as philosophical. That of Watt is a model.

his earliest years he appears to have been wholly consecrated to scientific pursuits, so no one ever entered upon his course with a more fervid courage. The earliest of his inquiries of which we have any knowledge was an analysis of gypsum, presented to the Academy of Sciences in 1765, and published in the collection of 'Mémoires de divers Savans,' 1768. In 1764 a prize had been proposed by M. de Sartine, the celebrated chief of the police of Paris, for the best method of lighting a great town, so as to combine illumination with economy, and with facility of service. After the lapse of twelve months no dissertation had been presented which satisfied the conditions of the programme, and the prize was doubled, being raised to 2000 livres; and next year, 1766, the conditions remaining still unsatisfied by the candidates, the prize was divided among the three best, while a Memoir of great merit, by M. Lavoisier, was honourably mentioned and ordered to be printed. The King, too, on M. de Sartine's recommendation, directed a gold medal to be bestowed upon the author, who was presented with it at the public sitting of the Academy in April, 1766. In 1769 he obtained the place of a fermier-général, by a kind of hereditary title; and in 1771 he married Marie-Anne Paulze, whose father likewise belonged to the same financial class. In 1768 he had been admitted a member of the Academy, at the early age of twenty-five. His paper on the lapis specularis, related to the composition of the great strata forming the basin of Paris.

He appears for some years to have occupied himself principally with geological inquiries; he made mineralogical journeys in various parts of France in company

with M. Guettard; and he had collected materials for an extensive work on the revolutions of the globe, when the recent progress of another science gave a new direction to his pursuits. His paper on gypsum contains a number of experiments, which shew it to be a neutral salt, soluble in a great proportion of water, and composed of sulphuric acid united to a calcareous base. This and almost every other part of his paper was well known before. M. Montigny had, in the 'Mémoirs of the Academy,' 1762, shewn its solubility, and M. Margraaff, in the 'Berlin Memoirs,' as far back as 1750, had proved both this and its composition. M. Lavoisier refers to these long-published works in a note appended to his paper, but states that he had not seen Margraaff's till after his own was read before the Academy. He also states that M. Baumè had published researches similar to his in a journal, but that he was not aware of this till he had made considerable progress with his paper. It is unfortunate that this eminent person should have begun his works with this kind of doubt hanging over his originality. Yet we may observe that his paper contains an ingenious theory, explaining the phenomenon of the formation of gypsum on the principles of ordinary crystallization; and that he has also ascertained the proportion of water required for its solution more accurately than had before been done; that he gave a systematic view of the whole subject. *Qualis ab incepto processerat*—It is remarkable that all the distinguishing characters of his inquiries in after-times should be found to mark this his first production. We observe the same disputed originality in his experiments, the same anticipation of his discoveries by former inquirers, the same superiority

of his processes in point of accurate admeasurement, the same inferiority of his experiments to his reasons, the same happy generalization of facts observed by others, the same turn for throwing doctrines and discoveries not his own into one combined system.

The discoveries of Black had, long before M. Lavoisier entered upon his scientific pursuits, directed the attention of philosophers to the important subject of gaseous bodies, to their production by the absorption of heat, and to the combinations into which they enter with other substances, so as to alter the nature of these. The great doctrines of causticity and of latent heat, with the existence of fixed air, and its evolution in respiration, fermentation, and combustion, had been established, and had formed a new era in chemical science. Fixed air was discovered in 1754; latent heat before 1763. Mr. Cavendish had prosecuted these inquiries with success; he had examined some of the properties both of fixed air and of hydrogen; had determined their specific gravities, and had shewn that they are always the same from whatever substances they may be obtained. His experiments were published in 1766. Soon after this time Dr. Priestley began his brilliant course of discovery. A new scene had been opened to philosophers; they were like infants gazing on the material world, every object of which is new to them, and whose whole existence is one continued gratification of curiosity. Aware from former discoveries that various kinds of air, each having its peculiar properties, exist in nature, he was of course ever expecting to meet with them; and, accordingly, he soon found that the air of the atmosphere yields one of these, which on a false theory he termed phlogisticated, but which others have termed azote, being

incapable of supporting either animal life or flame. These experiments of his were published in 1772.

Before proceeding further with the history of chemical discovery, it is necessary I should mention a serious inconvenience thrown in the way of the accurate inquirer by the very extraordinary manner in which the 'Memoirs of the French Academy' have always been published. The 'Philosophical Transactions' appear most carefully in two, sometimes, though very rarely, in three parts every year, and all the papers published each year have been read before the Society during the course of that year; nay, all the papers which form each part have been read during the half-year immediately preceding the publication of that part. It is far otherwise with the French Academy's 'Memoirs;' these never are published in less than three, sometimes even four years after the year to which they nominally relate. Thus the volume for 1772 consists of two parts, one of which was published in 1775, and the other in 1776. But this would occasion a small inconvenience to the inquirer into dates and facts, if it only indicated that the work was constantly in arrear, and that the papers purporting to be those of any given year, as 1772, were not published till three or four years later. That, however, is by no means the case. It continually happens that the papers classed as those of one year were in reality read a year or two later. In earlier periods the dates are often not given at which papers were read, but from internal evidence we find when they were read; for in the volume for 1772, p. 12, we have M. Lavoisier quoting a book published in January, 1773, and describing an experiment made in August of that year, (p. 598). So in the

volume for 1770, we have an account of an eclipse in April, 1771, and of experiments made in autumn, 1771, (p. 621). In later volumes the dates are more accurately given, though sometimes they tend to bewilder us. Thus the volume for 1776 was not published till 1778, and it contains a paper of M. Lavoisier, printed in Sept. 1778, and read 23rd Nov., 1779. So the volume for 1776 contains another paper of his, stated to have been printed in Dec., 1777. In like manner the volume for 1774 was published in 1778, and it contains a paper read 1774, but *relú* 1777. And the volume for 1775 has a paper read Easter, 1775, *relú* Aug., 1778. It is needless to remark how very difficult this kind of confusion and inaccuracy, wholly unaccountable, renders it to ascertain the precise date at which any experiment was made, or theory formed. We are in most cases left to mere conjecture, being uncertain of anything but the time of publication, and not always sure of that.

In the year 1768 M. Lavoisier began to occupy himself almost exclusively with chemical inquiries. Well educated in the kindred branches of natural philosophy, and fully conversant with all that was then known of chemistry, ardent in the pursuit of scientific truth, filled with a noble ambition to distinguish himself among its students, careless of the various pursuits which men in his circumstances find all-engrossing, he was also in possession of ample wealth, and could both command the aid of some and obtain the fellowship of others in his researches, while the most costly apparatus, and the most expensive experiments, were at all times within his reach. He soon filled his house with the finest instruments, and opened it freely to all men of letters and of

science. In their company, and with the inestimable advantage of their constant society, in which every point was discussed and all difficulties encountered by their lights as well as his own, he devoted the rest of his praiseworthy life to his favourite science, repeating the experiments of others, varying them with the suggestions of his own mind, and, in some instances, devising new ones which he successfully conducted. We are now to consider the fruits of these glorious labors.

In 1768 and 1769 he made a number of very laborious and very accurate experiments, with the view of ascertaining the correctness of an opinion long entertained, and among others by Bonde and Margraaff, that water may, by repeated distillations, be converted into earth; and also of determining whether or not there was any foundation for the opinion that water can, by repeated distillations, become so elastic and aëriform as to escape through the pores of vessels: an opinion entertained by Stahl, the celebrated author of the phlogistic theory. M. Lavoisier satisfactorily disproved both these positions, and shewed that the earth which had misled others was a portion of the vessels: used in performing the distillation. The account of these experiments was given to the Academy in 1770, and published in 1773. It may give us some idea of the pains with which these experiments were performed, to state that one of them lasted a hundred and one days.

In the year after these inquiries were carried on, his attention appears to have been turned aside from chemical studies, by the reports which he made to the Academy upon the means of supplying Paris with water, at an economical rate. A question having arisen between

the Government and M. Parcieux, a learned mechanical projector, on the comparative expense of bringing the water of the rivulet Yvette by canal and wheel engines, or by steam engine, M. Lavoisier examined the subject, and shewed that the latter mode was the most expensive. His Memoir appeared in the volume for 1771. In that year, however, he resumed his chemical pursuits, and applied himself to the attentive consideration of the calcination of metals. The recent discoveries on the nature of gases by Black, Cavendish, and Priestley, appear to have chiefly contributed to his doubts upon the foundation of Stahl's theory, which considers the union of phlogiston, or the matter of heat and light, with the basis of the metals, as the cause of their lustre and ductility, and the evolution of that substance as the cause of their becoming earthy, or calces. M. Lavoisier examined the process by which minium, or red lead, is reduced, that is, resumes its metallic state, and he found that there was always evolved a great quantity of air, which he examined and found to be fixed air, being, he expressly says, the same that escapes in the effervescence of alkalis and calcareous earth, and in the fermentation of liquors. He then examined the converse operation of calcination, and found it accompanied with an absorption of air, and that the weight of the metal had increased by the whole weight of the air absorbed. The inference which he drew was, that calcination is caused by the union of air with the metal, and not by the loss of any body, as phlogiston, combined with it. These experiments and this theory he published at the end of the year 1773, in a small volume entitled 'Opuscules Physiques,' which describes very fully the previous discoveries

on gases and on heat, and contains many ingenious discussions on the processes of calcination and combustion. He had in the course of that year read several Memoirs, on the subject of his own experiments, to the Academy, and had shewn these experiments to several of its members. Nothing, therefore, can be more incontestable than his claim to the important step now made, the cause of so many others, that the calcination of metals is their uniting with a gas become fixed and solid in their substance; and a mortal blow was thus given to the theory of Stahl.* But it must be added that he was wholly ignorant of the nature of the air absorbed. He seems to have been deceived by the quantity of fixed air which minium contains, and to have hastily supposed this air to be the cause of calcination, without examining the air in which he performed the more useful and converse experiment.

It is singular how very near M. Lavoisier came in these inquiries to two discoveries of first-rate importance. He could not have examined with any care the residue of the air in which his calcinations were performed, without discovering the composition of the atmosphere; nor could he have examined the air given out in the reduction of calces to their reguline, or metallic state, without discovering oxygen. It was reserved for Dr. Priestley, two years later, to make both these capital discoveries.

A similar remark arises upon the next inquiry of any

* It is truly painful to find the determination of French writers never to take the trouble of giving the names of foreigners with any accuracy. Lavoisier always calls Stahl either Stalh or Sthal, and never once gives his right name.

importance in which M. Lavoisier was engaged. For we may pass over his experiments on the use of alcohol in the analysis of mineral waters, as he admits that the subject was familiar to chemists, having been treated at length by Macquer. It may, however, be observed in passing, that he claims as a discovery the proposition that alcohol attacks salts differently when mixed with different proportions of water; and also, that nothing can be more crude than his notions of the connexions between the salts and the mineral kingdom—for a large portion of his Memoir is devoted to prove that there can only be three mineral alkalis, soda, calcareous earth, and what he calls the base of Epsom salts, which is magnesia, and two mineral acids, the vitriolic and muriatic—propositions as wide of the truth as possible, and, apparently, chiefly recommended to him by their shewing that the experiments with alcohol, which he had made with those substances, exhausted the subject of mineral waters.

But the next important inquiry of this eminent chemist related to the action of heat on the diamond, or, as he very inaccurately termed it, the destruction of the diamond by fire. These experiments were performed with great care, and without any regard to expense; to which purpose a public-spirited jeweller also contributed largely. They were performed partly by fire, partly by the great lens of Tschirnausen belonging to the Academy. The Memoir is in the volume for 1772, Part II., published in 1776; but the experiments were not all performed till late in 1773, and the Memoir was probably read in 1774. It was found that some carbonaceous effervescence (as he describes it) could be observed when

the heat applied was not very strong, though a stronger heat dissipated the diamond altogether if exposed to the air. Hence M. Lavoisier inferred, that beside being a combustible substance, as Newton had sagaciously imagined from its optical qualities, and as Macquer had proved by direct experiment, it is capable of conversion into charcoal. But a more important fact was also ascertained. M. Lavoisier examined the air in which the evaporation, as he terms it, of the diamond was performed, and he found that it precipitated lime from lime water. Examining the lime thus thrown down he found it to be chalk, and thence concluded most justly that the air produced during the combustion of the diamond was fixed air. This, however, is not his enunciation of the proposition; he only says, that the air in which the diamond had been evaporated had acquired in part the properties of fixed air, or the air which, he correctly says, comes from the effervescence of alkalis and from fermentation, and which, he very erroneously says, (following the mistake into which he had fallen in his experiments on calcination) is the air given out by metallic calces on their reduction to the reguline state. He rests in doubt between the two inferences from his experiments—the one, that the diamond evaporates into fixed air; the other, that its vapour changes atmospheric into fixed air.

Observing the analogy between the diamond and combustible bodies, he exposed it to heat when surrounded with fixed air, and atmospheric air was excluded. The evaporation went on, but much more difficultly and slowly. The probability is that the air was not entirely fixed air, else the diamond could not have evaporated at all.

The production of fixed air by burning charcoal, alcohol, ether, in close vessels had been long known; but M. Lavoisier carefully subjected charcoal to the same process which he had made the diamond undergo, and the result was nearly the same.

The conclusion at which he arrived from these experiments, is marked by a caution truly philosophic, and as well deserving our admiration, as the sagacity which distinguished the conduct of the inquiry. "We should never have expected," he says, "to find any relation between charcoal and diamond, and it would be unreasonable to push this analogy too far; it only exists because both substances seem to be properly ranged in the class of combustible bodies, and because they are of all these bodies the most fixed when kept from the contact of air." He adds, "It is far from being impossible that the blackish matter should come from surrounding bodies, and not from the diamond itself."

It is needless to remark how very near he was, in this inquiry, to making the discovery that diamond and the pure carbonaceous matter are identical, and that both form alike fixed air by their union with another and a gaseous substance. Dr. Black had shown, nearly twenty years before, that fixed air was the product of the combustion of charcoal. Had M. Lavoisier performed his experiments on that combustion with a little more care, he would have made the discovery in 1773, which he did a few years later; and as he then was occupied in considering the nature of the diamond, its identity with carbon would not have escaped him as it afterwards did when he first ascertained the composition of fixed air.

In 1773, M. Lavoisier made some very accurate expe-

riments upon the calcination of air in close vessels; and he proved clearly that the whole air and metal after calcination weighed exactly the same as before, and that the metal had gained in weight exactly what the air had lost. But he adds an inference which is very remarkable on more accounts than one. It is that the atmosphere is composed of two gases, one capable of supporting life and flame, and of combining with metals in their calcination, the other incapable of supporting either life or flame, or of combining with metals. Now here begins the blame imputable to this great philosopher. His paper is said in his Memoir (p. 351,) to have been read at Martinmas, 1774; and to have been "*remis*," 10 May, 1777; he says, p. 366, that he had received a letter from P. Beccaria, dated 12 Nov. 1774, but that his own Memoir was then drawn up, and that an "Extract" of it had been read at the public sitting in November. He does not state whether or not the important doctrine above-mentioned, on the constituent parts of the atmosphere, was contained in that extract; nor how long before 10 May, 1777, it was added to the paper. Moreover, he says nothing whatever of the communication made to him by Dr. Priestley, in October, 1774, of his grand discovery of oxygen. Nor does he mention that the same philosopher had, in 1772, discovered the existence of azote in the atmosphere, and received, from our Royal Society, the Copley medal the following year, on account of his paper printed in the 'Philosophical Transactions for 1772.' It is wholly impossible to believe that the experiments on tin could have given M. Lavoisier any light on the constitution of the atmosphere, which he had not derived from his similar experiments in 1770, and

1771, upon the reduction of minium, and the calcination of other metals. But the discoveries of Dr. Priestley must have been known to him in 1774; and what he gives as conjectures derived from his own experiments, were the discoveries of Dr. Priestley in 1772 and 1774. The knowledge of these discoveries formed the only difference between the state of M. Lavoisier's information, when he experimented upon tin in 1774, and when he experimented on lead three years before. It is perfectly clear that until the discoveries of Dr. Priestley, the chief of which, we have positive evidence, was communicated to him by the Doctor himself, he never had the least idea of the air absorbed in calcination possessing any qualities like those of oxygen gas, or that the air evolved in the reduction of calcined metals, was of that nature; indeed, he distinctly stated it to be fixed air, misled by the quantity of fixed air found in minium as an impurity. He had made many experiments on calces of metals, and he had never found any air to be contained in them resembling oxygen. Until he heard of Dr. Priestley's great experiment he never had thought of obtaining oxygen gas from those bodies, nor ever knew of the existence of that gas.

This is the plain inference from the history of his inquiries, as far as we have now followed it. But as he has himself, beside wrapping up the date of his theory in the general terms already observed when he presented his paper on tin, also laid positive claim to the discovery of oxygen in a subsequent Memoir, it becomes necessary to examine the grounds of this pretension more closely, and we shall find that this examination entirely confirms the position already stated, namely, his ignorance of oxygen, until the true discoverer made him acquainted with it.

We shall first give the words in which he couches his claim. I quote from his 'Elémens de Chimie.' "Cet air" (oxygen gas,) "nous avons découvert presqu'en même tems, Dr. Priestley, M. Scheele et moi."

Now I begin this statement by observing, that as to the precise time of Dr. Priestley's discovery there is no doubt; no "presqu'en même tems;" it was the first day of August, 1774. Scheele, without knowing of his discovery, made the same the year after, 1775. So far then the statement of Lavoisier is incorrect; Priestley and Scheele did *not* discover oxygen, "presqu'en même tems." But we must proceed, and shall first of all examine in what way M. Lavoisier preferred his claim. For that would have rested upon a foundation somewhat more plausible had he brought it forward early, and always adhered to the same statement. But the reverse is the fact.

We must first observe that not a hint is dropped of this claim in the paper upon calcination first presented in 1774, and afterwards with additions in 1777. In 1775, at Easter, he read a paper on the nature of calcination, which was "relû 8 August, 1778;" with what additions is not stated. But the experiments which it contains are of two classes; the one set he says were made above a year before, or in spring 1774, and these throw no new light at all on the subject; the others were made, he says, first in November, 1774, and more fully before other persons, in the following spring. These experiments show that the oxygen of the atmosphere is absorbed in calcination; and this conclusion is stated; but no claim whatever is made to the discovery of oxygen gas, although if discovered by him at all, it must have been in those experi-

ments. He only calls it "the most respirable portion of the atmosphere." A most important admission is, however, made in a subsequent paper, 1782, that the experiments in which he made this step, were not those performed in 1774, but those performed in February, 1775, (Vol. for 1782, p. 458). In 1776 he printed a Memoir on Nitrous Acid, in which ample justice is done to Dr. Priestley's discoveries, and the experiments recounted as made by M. Lavoisier, are admitted to have all been Dr. Priestley's suggestions; he himself only claiming to have drawn more correct inferences from them. Among these inferences, there is only the one that nitrous acid consists of oxygen and nitrous gas; but no suspicion of its real composition, afterwards discovered by Mr. Cavendish to be the union of azote and oxygen, is even hinted at. It is also material to note, that in this paper not a word is said of the claim to having discovered oxygen. In 1777 a paper was printed by him on the combustion of phosphorus with "air éminemment respirable," to form phosphoric acid; that air is said to be "by Dr. Priestley termed dephlogisticated air," and still nothing is said of the claim to its joint discovery; but in p. 187 he speaks of the "expériences de Dr. Priestley et les miennes," on precipitate *per se*. These experiments, we are told by him, in the volume for 1775, (p. 520,) were made in November, 1774. In 1778, he printed, it is said, his Memoir on Acids. The date of presentation is given as September, 1778, but the reading is said to have been 23 November, 1779. In this paper, (p. 536,) he speaks of "the pure air to which Priestley gave the name of dephlogisticated, but which he himself calls oxygen, as being the acidifying principle." No mention is made of the base of nitrous

acid, or of his claim to the discovery of oxygen. In 1780, in another paper, he speaks of "vital air, which Priestley improperly called dephlogisticated," (p. 336.) In the volume for 1781 is a paper on Scheele's work; and though Scheele's discovery of oxygen is mentioned, no claim to a partnership is advanced. In the same volume is the admirable paper on the constitution of fixed air, to which he gives the name of carbonic acid, but still no mention of having discovered oxygen. Thus we find that, in at least eight several papers which discuss the effects produced by the absorption and the evolution of oxygen gas, printed between the years 1772 and 1780, not the least hint is given of his own claim, though in five of those papers he mentions Priestley as having given it a name; and one would therefore believe acknowledges him as the discoverer, without claiming any partnership for himself. This must be confessed to be a very strong circumstance, according to all the rules of evidence and principles of decision which men apply to the discussion and determination of claims in ordinary cases.

It was not till late in the year 1782, that this claim for the first time appeared. In a paper read November of that year, upon the means of increasing heat by the use of oxygen, he says, (p. 458,) "Cet air que M. Priestley a découvert à peu-près en même tems que moi, et je crois même avant moi;" and reminds the Academy that he had announced this inquiry at Easter, 1775, as having been conducted with M. Trudaine in Montigny's laboratory some months before. Now, in the Memoir already cited, he distinctly informs us that these experiments were not made till February, 1775; therefore, it is to

this period that he refers his supposed discovery, and not to any part, however late, of 1774. It must also be borne in mind, that, for the reason formerly stated respecting the irregular publication of the Memoirs, and the inserting in one year the papers read long after, in many cases, without noting the date of their presentation, it becomes impossible to be certain of the time at which many of them were actually read. But I have always assumed that M. Lavoisier's were read at the times stated by him; and where no date is given I have supposed the paper to have been read in the year to which the volume refers—a supposition manifestly favourable, and often gratuitously favourable, to his case.

We have thus seen the suspicious manner in which, after suffering to pass over at least eight occasions on which he might naturally have brought forward the claim, he *at length* makes it at an interval of ten years; but he makes it with an important admission, that Priestley's discovery had been before his own. Yet strange to tell, when he repeats the assertion of "*presqu'en même tems*," in his 'Elémens de Chimie,' he entirely omits this statement of "et même je crois avant moi." Let us now observe what Dr. Priestley himself states, first remarking that he comes before us without the least unfavourable impression attached to his testimony, while M. Lavoisier's is subject to the weight of the observation already made, and arising entirely from his own conduct. Dr. Priestley, moreover, was a person of the most scrupulous veracity, and wholly incapable of giving any false colouring to the facts which he related respecting his discoveries. Indeed, no man ever shewed less vanity

respecting his extraordinary services to science. He even frankly and honestly, in the prefaces to his Essays, disclaims much merit that all men would allow him; and fairly tells how many of the great things which he had done were the suggestions of hazard, and not found out by any preconceived plan for making the discovery. No one, therefore, can possibly be cited whose authority is more unimpeachable in weighing the facts of such a case.—The following are his own words in a work published by him, in 1800, upon phlogiston. "The case was this. Having made the discovery (of oxygen) some time before I was in Paris, in the year 1774, I mentioned it at the table of M. Lavoisier, when most of the philosophical people of the city were present, saying, that it was a kind of air in which a candle burnt much better than in common air, but I had not then given it any name. At this all the company, and Mr. and Mrs. Lavoisier as much as any, expressed great surprise. I told them I had gotten it from *precipitate per se*, and also from *red lead*. Speaking French very imperfectly, and being little acquainted with the terms of chemistry, I said *plombe rouge*, which was not understood till Mr. Macquer said I must mean *minium*. M. Scheele's discovery was certainly independent of mine, though, I believe, not made quite so early."

It is very important here to remark that M. Lavoisier's surprise was expressed at finding that *minium* had yielded this new air by reduction. He himself had made the experiment with minium, as we have seen, and only could detect fixed air as the produce; whence his erroneous inference that a metallic calx is composed of the metal united with fixed air. It was not till six months after this discovery of Dr. Priestley,

and full four months after his expression of surprise, that he made the experiments which he many years afterwards thought it not unbecoming to affirm, had led him to the discovery about the same time with Priestley. I will venture to assert that no one, however little conversant with the rules of probability, or accustomed to weigh testimony, can hesitate a moment in drawing the conclusion, that M. Lavoisier never at any time made this discovery; that he intruded himself into the history of it, knowing that Priestley was its sole author; and that, in all likelihood, he covered over to himself this unworthy proceeding, so lamentable in the conduct of a truly great man, by the notion that he differed with Priestley in his theory of the gas—the one conceiving it to be a peculiar air deprived of phlogiston, and capable of taking it from inflammable gases; the other holding it to be air which unites to inflammable bodies, and precipitates its heat and light in forming the union. But all must admit that the air was a newly discovered substance, a gas wholly different from all other gases formerly known; and that therefore, whatever might be the theory, the question of fact regarded the bringing this new substance to light. No self-deception, therefore, can vindicate M. Lavoisier for either the statement in his Memoir, suppressing all mention of Dr. Priestley's communication, or the still more reprehensible statement in his 'Elements,' suppressing the trifling confession of Priestley's priority. With respect to Scheele the case is wholly different. What Priestley had discovered in 1774, he discovered the year following, without being aware that he had been anticipated. His process, too, was wholly different from Priestley's, whereas Lavoisier's was the very same. Of

these great men, then, Priestley made the discovery in 1774, Scheele in 1775, Lavoisier neither in 1774 nor in 1775, nor ever except by receiving the information from "the true and first discoverer thereof, which, at the time, others did not use."*

There can be no doubt whatever that it was the discovery of oxygen gas which suggested to M. Lavoisier his theory of combustion. He had previously made the important step of explaining the calcination of metals, so far, at least, as shewing that it was the union of the metals with air absorbed, though he was wholly mistaken as to the air which they gave out on reduction, and had a most imperfect notion of the change which their calcination produced on the air in which the process took place; but now he was enabled, by Dr. Priestley's discovery, to shew that the air absorbed is oxygen gas; while Dr. Black's great doctrine of heat, which he also called to his assistance, enabled him to perceive that the gas, on becoming fixed, parted with its latent heat, and assumed a solid form. A felicitous idea of Macquer's, which M. Lavoisier cites, ('Mem.,' 1777, p. 572,) that calcination is only a slow combustion, may have given rise to his theory of this operation; but he had also, in his experiments on phosphorus and sulphur, shewn the absorption of oxygen by those bodies in burning; and as the doctrine of Dr. Black shewed how much heat was evolved on a gaseous body becoming fixed and solid, we may suppose that these experiments, which he laid before the Academy in the spring of 1777†, led him to his

* Words of our Patent Act, 21 James I.

† In his Memoir on Phlogiston in the volume for 1783, he speaks of his theory of combustion as having been "published in 1777." If

general theory. This theory is well known. It consists in supposing that all combustion, like all calcination, is produced by the union of oxygen with the body burnt or calcined; and that the gas which, in calcination, only gives out its heat and light slowly and imperceptibly, unless when this operation is performed very rapidly, in combustion gives out that heat quickly and sensibly. Thus the doctrine is, that, by applying heat to a combustible body, we so far overcome the attraction of cohesion as to make the particles enter into a union with those of the gas, which gives out its latent heat and light, thus causing the flame that marks and distinguishes the process. Calcination, too, may be produced so quickly, that the process is attended with red heat, and even with flame. Iron burns with a bright whitish and sometimes a bluish flame, gold with a duller and more lambent flame of a greenish colour.

The product of the combustion, slow or quick, was next attentively considered by M. Lavoisier. In the case of metals it was their calces, or as he denominated them from the process of oxygenation, *oxides*. In the case of sulphur he had found it to be vitriolic acid, of phosphorus phosphoric; nitrous gas, which he erroneously supposed the base of nitrous acid, formed that acid by its union with oxygen. The nature of fixed air, too, was no

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by "published" he means read at the Academy, this may be correct, for it appears to have been read 5 Sept., 1777, but the volume was not published till 1780. In the same volume we find internal evidence that the other papers referred to in the text were read in the opening of that year; thus, one of them read in May refers to experiments about to be performed in company with M. Trudaine and M. Montigny, the former of whom died in August, 1777.

longer a matter of doubt. Dr. Black had shewn, as early as 1757, that the combustion of charcoal produced it. M. Lavoisier, in 1777, satisfied himself by his experiments on pyrophorus formed by heating alum and carbonaceous matter together, that the union of carbonaceous matter with oxygen gas produces fixed air. It is true he did not complete this important inference till 1781, when he shewed by decisive experiments that charcoal contains, beside inflammable air, water, and other impurities, a matter purely carbonaceous, and which he afterwards termed *carbon*, which, by its union with oxygen, forms fixed air, thence called by him *carbonic acid*. But the knowledge that the something contained in charcoal uniting itself with oxygen gas forms fixed air, and that this fixed air is an acid, had been obtained by Dr. Black, M. Lavoisier, and M. Macquer before 1777. On these facts he now reasoned as well as on the composition of the acid of sugar, which, with other vegetable acids, he considered as containing oxygen. He then made his famous generalization that oxygen is the acidifying principle, and from thence he gave it the name. Dr. Priestley had shewn its absorption by the lungs in respiration; and thus we had the general proposition established, as M. Lavoisier supposed, that oxygen gas is necessary to combustion, calcination, acidification, respiration, possibly to the animal heat thence arising, and certainly to the red colour of arterial blood; consequently he held that all those processes, so different in themselves, are really one and the same, the union of oxygen with different bodies in different ways. I reserve for a subsequent stage of the treatise the consideration of this important and beautiful theory.

While M. Lavoisier was employed in generalizing the phenomena observed by others, in correcting former opinions, and in adding materially to the store of facts by his own experiments, but rather filling up blanks left by his predecessors than producing any very striking novelties himself, two most important discoveries were made in England which call for our careful observation, —the composition of water and of the nitrous acid. Respecting the latter discovery there is no question whatever. Mr. Cavendish alone is its author. Dr. Priestley had shewn that nitrous acid was resolvable into nitrous gas, which he discovered, and oxygen. M. Lavoisier had never gone further than to suppose that gas the base of the acid. He had never suspected it to be compounded of any other known materials, except in so far as it plainly contained oxygen; and as for azote, the residue of atmospheric air after the oxygen gas, or respirable part, is withdrawn from it, we find him expressing strongly ('Mém.,' 1777,) that this is a body of whose nature we are wholly ignorant. I am not aware that he ever laid any claim whatever to share in Mr. Cavendish's great discovery, to which he was led by the most philosophical consideration of the acid always found when oxygen gas, impure from the presence of nitrogen or azote, is burnt with inflammable air. A careful course of experiments devised and directed by him, performed by his colleagues of the Royal Society, led to the knowledge of this important truth.

But the other great discovery with which his name is inseparably connected stands in different circumstances. Nothing can interfere with his title to be regarded as having first made the capital experiment upon which it

rests; but it is equally undeniable, that from less elaborate experiments Mr. Watt had before him drawn the inference then so startling, that it required all the boldness of the philosophic character to venture upon it—the inference that water was not a simple element, but a combination of oxygen with inflammable air, thence called hydrogen gas. That Mr. Watt first generalized the facts so as to arrive at this great truth, I think, has been proved as clearly as any position in the history of physical science. ('Life of Watt,'—Historical note in Appendix.—Eloge of Watt by Arago.) It is equally certain from the examination of Mr. Cavendish's papers, and from the publication lately made of his journals, first, that he never so clearly as Mr. Watt drew the inference from his experiments; and, secondly, that though those experiments were made before Mr. Watt's inferences, yet Mr. Cavendish's conclusion was not drawn even privately by himself, till after Mr. Watt's inference had been made known to many others.*

In 1783, after Mr. Cavendish's experiment had been made, and after Mr. Watt's theory had been formed upon the experiments of Warltire and Priestley, and of Mr. Watt himself, Sir Charles Blagden went to Paris. The experiments of Mr. Cavendish were made in 1781, the theory of Mr. Watt was contained in a letter which was

* Mr. Harcourt's publication, contrary indeed to his design, has greatly strengthened the evidence in Mr. Watt's favour. ('Life of Watt,' in vol. i., p. 201.) Professor Robison's article in the 'Encyclopædia Britannica' gives an opinion coinciding with mine; and it was published thirteen years before Mr. Cavendish's death. I first stated that opinion in a published form in 1803-4. ('Edinburgh Review,' vol. iii.) See the Appendix to this Life, in which some account is given of the extraordinary errors and carelessness about facts, which distinguish M. Cuvier's Eloge of Mr. Cavendish.

communicated to the Royal Society in April, 1783: there is even reason to think from his correspondence, that it was formed earlier. Mr. Cavendish never gave the least intimation of having drawn any such inference from his experiment before April, 1783, when Mr. Watt's letter was in the hands of the President of the Royal Society, and was accessible to Sir Charles Blagden, one of the Council. Mr. Cavendish's Diary of his experiments has been carefully examined, and fac-similes have been printed by Mr. Harcourt of all that relates to the discovery; not a word is to be found of the inference or conclusion from the experiment, of a date prior to April, 1783, when Mr. Watt's letter was in the hands of the Society. It is certain that, whether he took the theory from Mr. Watt or had formed it himself, he did, previous to June, 1783, adopt and express the opinion that his experiment shewed "dephlogisticated air to be water deprived of its phlogiston." Now this was, in the language of the Stahl doctrine, holding that water was formed by the union of phlogiston with dephlogisticated air, a calx, as it were, of phlogiston. But Mr. Watt's theory was, that phlogiston and inflammable air are synonymous. Be this, however, as it may, the conclusion contains the real doctrine of the composition of water, how much disguised soever by the language of the phlogistic theory; and that conclusion was communicated, Sir C. Blagden says, "in summer, 1783," to M. Lavoisier. His words are, "that he gave last summer (1783) some account of Mr. Cavendish's experiments to M. Lavoisier, as well as of the conclusion drawn from them, that dephlogisticated air is only water deprived of its phlogiston: but at that time so far was M. Lavoisier from thinking any such opinion warranted, that till he

was prevailed upon to repeat the experiment himself, he found some difficulty in believing that nearly the whole of the two airs could be converted into water."*

This passage is in Mr. Cavendish's paper; but it is not in his own hand-writing, nor is it in the paper as at first printed; it is added in the hand-writing of Sir C. Blagden, and is therefore that gentleman's assertion of what had passed at Paris the summer before. M. Lavoisier states that it was in June Sir C. Blagden saw him; and also states that he was present when the experiment on which the French claim to the discovery rests, was performed by Messrs. Lavoisier and Laplace before several Academicians on the 24th of June. He adds the material fact, that Sir Charles informed the company of Mr. Cavendish's having already performed the experiment, and obtained a considerable quantity of water from the combustion of the two gases. He wholly omits the still more material fact, that Sir Charles also stated the conclusion drawn from the experiment in England; and he does not mention that he, M. Lavoisier, did not believe it possible that nearly the whole of the two airs could be converted into water. This omission of M. Lavoisier is quite unworthy of him. Sir C. Blagden's statement was published in 1784 in the 'Philosophical Transactions;' and though M. Lavoisier constantly wrote papers which were published by the Academy for several years after this statement of Sir Charles in Mr. Cavendish's paper, and though his Memoirs repeatedly touched upon the composition of water, and in one of them he gave it as a truth established by himself,

* In a letter of Blagden's, published in 'Crell's Annals,' in 1786, he states having mentioned to Lavoisier also Mr. Watt's conclusions, which he there admits had been made "about the same time" as Cavendish's. Vol. I. for 1786.

('Mém. sur la Décomposition de l'Eau par la Végétation des Plantes,' 1786,) yet he never gave a word of contradiction to Sir C. Blagden's statement. Indeed, that Sir Charles must, if he related the experiment as M. Lavoisier says he did, have also added the conclusion drawn from it, is quite evident; he never could have given the one without the other. If the unbelief of M. Lavoisier was not a fact, it was a pure invention of Sir Charles, which not only M. Lavoisier, but M. Laplace, M. Leroy, and others, all present at the time, could at once have contradicted. And here the reader cannot fail to recollect, that a very similar circumstance attended Dr. Priestley's communication of his discovery of oxygen to M. Lavoisier. When the Doctor described the effect of this new gas in enlarging the flame of bodies burnt in it, M. Lavoisier expressed his great surprise; yet he afterwards suppressed all mention of his surprise, and of his having received the account of the discovery from the real author. In the case of Mr. Cavendish's experiment, he admits having been told of it; and suppresses all mention of the theory having been at the same time imparted to him, and of his own incredulity until he repeated the experiment and convinced himself.

It seems, therefore, quite certain, that in this case, as in that of oxygen, M. Lavoisier's intrusion is clearly proved; that he performed an experiment which another had before, to his knowledge, contrived and made; that he drew a conclusion from it, in substance the same with the conclusion which others had drawn, and which he had been apprized of, before he either produced the experiment or reasoned upon its result; that he related the whole, both in his 'Memoirs,' and in his 'Elements,' as if he had been the author of the discovery; and that he

only told a part of the communication previously made to him, leaving out if he did not suppress, the most important portion of the statement, the theory of the process.

It is on the other hand certain, that from having abandoned the phlogiston hypothesis, his theory of the experiment was more distinctly and accurately given than it had been by former reasoners who were hampered with the errors of that doctrine; although in the popular language at the time, the composition and decomposition of water was always spoken of as the discovery that had been made. We must further allow, that M. Lavoisier added a valuable experiment to the synthetical process of Priestley and Cavendish, the analysis of water by passing its vapour or steam over hot iron filings, and finding that the oxygen calcined the metal, while the other constituent part escaped in the form of inflammable air; an experiment of excellent use after the more crucial trial of the composition had been made, but wholly inconclusive had it stood by itself.*

In the course of these inquiries, of the numerous Memoirs to which they gave rise, and of the various discussions in which they involved him, M. Lavoisier, who was so anxious, as we have seen, to obtain a share or kind of partnership in the greatest discoveries of his time, never showed any anxiety to distribute the praise where it was really due, either among his contemporaries or their immediate predecessors. It might have been thought

* An admirable experiment similar to Mr. Cavendish's was performed in June, 1783, by M. Mongè, at Mézières. The account of it is given in the volume for 1783; and the author mentions in a note both Lavoisier and Cavendish's experiments, stating that they were performed on a smaller scale.

difficult to write so often as he has done upon the gases, and the new æra which their discovery opened to chemistry, and not to have once mentioned him, who, by the discovery of fixed air, was beyond all doubt the founder of the system. Still more difficult was it to investigate the properties of that body, ascertaining its composition with new accuracy, and yet avoid all allusion to Black, who had long before him proved it to be the product of charcoal when burnt. The reader will search in vain, either the papers on combustion, or those on acidification, or those on the composition of fixed air, for the least reference to that illustrious name. In the several Memoirs upon the nature of heat, its absorption and evolution, its combining in a quiescent state to form the permanently elastic fluids, how difficult was it to avoid all mention of him who made the great step of discovering latent heat, and showed that to its absorption was owing fluidity, both liquid and aëriform! I confess that when I first read the title of one of those excellent papers, "De la Combinaison de la Matière du Feu avec les Fluides évaporables, et de la Formation des Fluides élastiques aëriformes," (Mém. de l'Acad. 1777, p. 410,) I expected to find mentioned, at every step of the discussion, the author of this whole theory, and who left it absolutely perfect, who taught it from the year 1763 to crowded classes, and whose name was connected with it wherever science was cultivated. My wonder was not small when I found not the least allusion to Black, and that the problem was completely solved, how to frame an exact account of any given man's discoveries and theory, never coming into contact with his name. No reader of that paper could doubt that the whole doctrine was that of M. Lavoisier himself; and in a

paper printed seven years after by himself and M. de La Place, on the nature of heat, a reference is distinctly made to this doctrine of aëriform fluidity, as the theory of M. Lavoisier*. We find this in the Memoirs for 1780†, published 1784, but the paper was read June 18, 1783. The theory of latent heat had been taught by Dr. Black to large classes for above twenty years before that time, and had been universally associated with his name in every part of the world.

But it may be supposed, that by some singular chance, M. Lavoisier was unacquainted with that illustrious name. I must therefore produce evidence to the contrary under his own hand. In Oct., 1789, he writes to Dr. Black, and professes himself to be "zélé admirateur de la profondeur de votre génie, et des importantes révolutions que vos découvertes ont occasionnées dans la chimie." In the following year, July 14, he tells him: "Accoutumé à vous regarder comme mon maître, je ne serai content jusqu'à ce que les circonstances permettent de vous aller porter moi-même le témoignage de mon admiration, et de me ranger au nombre de vos disciples." Now after writing these letters, M. Lavoisier published his 'Elements;' and while writing them he published, in the Memoirs of the Academy, a paper in which the doctrine of latent heat, as the cause of fluidity, is described, and described

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* Mem. 1780, p. 399.

† See, too, vol. for 1777, p. 595. In the paper 1777 first cited, the only thing ascribed to preceding philosophers is the belief in the existence of an igneous fluid, or matter of heat in our planet; and the experiments of Richman, Cullen, Mairan, and Baumé on the production of cold by evaporation.

as his own, not as Black's, whose name is wholly avoided*.

It may easily be believed that Dr. Black's surprise was great upon this occasion, and that he treated the flattery contained in these letters with a very marked contempt. This we learn from his friend and colleague, Professor Robison, (Lectures, vol. II., note.) But this no one could have learnt from that illustrious philosopher's manner, when he had occasion to speak of his correspondent in public. I well remember the uniform respect with which he mentioned him in his Lectures, the admiration which he always expressed of his great powers of generalization, the satisfaction with which he recounted his experiments, some of which, he himself, performed before us; nay, the willingness with which he admitted him to a share of the grand discovery of the composition of water; and shewed us the analytical proof, or rather illustration of the doctrine, as a most happy confirmation of it, though not certainly deserving to be regarded as an unequivocal demonstration. No one could ever have suspected either the existence of the letters which I have cited or the blank in the Memoirs with which I have contrasted them.

After the year 1784, though M. Lavoisier continued his scientific labours, excepting his co-operation in forming the new nomenclature, and his important researches, in company with M. Seguin, upon the processes of respiration and transpiration, there are no results of his chemical inquiries that require to be mentioned. The paper on

* Mem. 1789, p. 567. Black is mentioned with Boyle, Hales, and Priestley, only as having shown that the air of the atmosphere is altered by the respiration of animals —(p. 568.)

Respiration (Mem. 1789) contains some very important experiments which throw great light upon that process, and some upon the production of animal heat. They not only clearly shew that the oxygenation of the blood, in passing through the lungs, produces both carbonic acid gas by the slow combustion of carbon, and water by that of hydrogen, the carbon and the hydrogen being alike supplied by the blood, which as early as 1785 M. Lavoisier had suspected from many appearances;* but they enable us to ascertain the exact quantity of oxygen gas consumed, and of carbon and hydrogen inhaled in the process; for they shew 24 cubic feet of gas, or 2 lbs. 1 oz. and 1 scruple to be consumed in 24 hours, and 2 lbs. 5 oz. and 4 scruples of carbonic acid to be formed with 5 scruples 51 gr. of water: answering to 10 oz. 4 scruples of carbon and 1 oz. 5 scruples and 51 gr. of hydrogen. A number of valuable physiological and therapeutical conclusions are derived from the same inquiry. In the paper on Transpiration (Mem. 1790) the inquiry is continued, and a general estimate is formed by approximation of the amount lost in the 24 hours by this process; it is 1 lb. 14 oz. and only 5 drachms by respiration: a calculation not reconcileable with the former course of experiments, which made the loss under 12 oz.

Beside these Memoirs, and one or two others of less importance on chemical subjects, he gave a paper in 1789 upon the horizontal strata deposited by the sea; a subject to which he had, in the earliest period of his

* The theory of the present day departs somewhat from Lavoisier's, particularly in holding that the carbonic acid is not produced at the surface of the lungs, and that the oxygen enters into combination with the mass of the blood, forming water and carbonic acid at the capillary terminations of the vessels.

scientific researches, devoted much of his attention, as I have already related. From his numerous observations, both on the coast and on the Paris basin, M. Monge drew the conclusion that the earth was originally covered with vegetables long before any animals were upon its surface. The subsequent inquiries, we may say discoveries, of Cuvier and his successors, deprive these comparatively imperfect attempts in geological science of nearly their whole interest.

In the course of the illustrious career which we have been surveying, its brightness occasionally dimmed with the spots which a regard for the truth of history overcoming our regard for his fame made it a duty to mark, this great man occasionally gave his aid to the administration of public affairs, not as a politician, for from that craft he ever kept aloof, but when called in by the government to its assistance. In 1776 M. Turgot, then minister, requested him to superintend the manufacture of gunpowder; and the result of his labours was both the increase by nearly a fourth in the explosive force of the compound, and, what the enlightened statesman who employed him valued still more, the suppression of the vexatious regulations for collecting saltpetre from private buildings: an operation of wise as well as humane legislation, by which the produce of that necessary article was increased fourfold. When the National Assembly, in 1791, appointed a committee to improve the system of taxation, he was again consulted, and he drew up a treatise, entitled '*Richesse Territoriale de la France,*' which contained the fullest account yet given of the production and consumption of the country, and was by far the most valuable report ever presented to the legislature. Being appointed one of the Commissioners of the

Treasury in the same year, he introduced into that great department such system and such regularity, that the income and expenditure under each head could be perceived at a single glance each successive day. To the new metrical system he contributed by accurate experiments upon the expansion of metals, never before fully investigated. He was likewise consulted, with great advantage to the public service, upon the best means of preventing forgery, when the system of paper credit led to the issue of assignats. The Academy, as well as the state at large, benefited amply by his mature and practical genius, formed to direct and further the affairs of life as well as the speculations of the closet. All its plans, and all the subjects referred to it by the government, received the inestimable advantage of his assistance and advice; he was a member of the Board of Consultation, and he was the treasurer of the body, in which capacity he introduced new order and exact economy into the management of its concerns.

These public cares did not distract him from that due to the administration of his private concerns. Agriculture had early in life engaged his attention; and he set apart a considerable tract of land on his estate, at Vendôme, for experimental farming. Of the peasantry upon his property he always took the most kind and parental care; and to the poor, in general, his charities knew no bounds but those of his means. His house in Paris is described as having been a vast laboratory, in which experiments were always going on: not merely those contrived by himself and subservient to his own speculations, but whatever trials any one connected with science desired to have made, and which required the aid

of his costly apparatus to perform. Twice a week his apartments were thrown open to receive all scientific men, foreigners as well as natives; all were received with the utmost courtesy; and to young men of merit in straitened circumstances this enlightened and truly liberal person was a generous auxiliary.

The lustre which his labours had shed over the scientific renown of France, the valuable services which he had rendered to her in so many important departments of her affairs, the virtues which adorned his character and made his philosophy beloved as well as revered, were all destined to meet the reward with which the tyranny of vulgar faction is sure to recompense the good and the wise, as often as the base unlettered multitude are permitted to bear sway and to place in the seat of dominion their idols, who dupe to betray and finally punish them. The execrable triumvirate in 1794 seized him with twenty-seven others, who had been fermiers-general before the Revolution, an employment he held as it were by inheritance; they were all flung into prison upon a charge which as against most of them, certainly as against Lavoisier, was ridiculously groundless, that of having mixed water and ingredients hurtful to the health of the citizens for the adulteration of tobacco, one of the objects of the ferme; but their real crimes were their possessions. On hearing of the order for his arrest he fled, and remained for some days in concealment; but understanding that his escape might injure the others, and that among them M. Paulzé, his father-in-law, had been arrested, he nobly, though to the sorrow of the sciences, gave himself up and was confined with the rest. He presently perceived that he must

expect to be stripped of his property; but he could lead the life of a philosopher, and wealth had never ministered to any but his philosophical pursuits. He had, indeed, when those dismal times began, in conversation with Laborde, said that he foresaw his fortune could not escape, and that he was resolved, when ruined, to support himself by his labour; and the profession in which he designed to engage was that of pharmacy. No such respite, however, was now allowed him. By a retrospective law, monstrous even in that season of violence, their persons were declared punishable for the profits which they had made from the old government, and punishable not as for malversation but treason. This iniquitous decree was passed on the 5th May; under it he was condemned to death by the Revolutionary Tribunal, before whom a courageous citizen, M. Hallé, had the noble firmness to read a detailed account of Lavoisier's discoveries, and his services to his country. After his sentence was pronounced, he himself asked to be allowed a few days' respite, in order that he might see the result of some experiments which he had planned, and which were going on during his confinement; the cruel answer of the Tribunal, through Coffinhal their brutal jester, was that "the Republic had no need of philosophers," and he was hurried to the scaffold on the following day, the 8th of May, 1794, with a hundred and twenty-three other victims, who suffered in the course of a few hours.

Thus perished, in the fifty-first year of his age, one of the most illustrious cultivators of science in modern times. When the absolutely harmless life he had ever led, remote from all political connections, is considered,

together with the utterly ridiculous nature of the charge against him, we can hardly avoid asking ourselves how it came to pass that no voice was raised, no hand stretched out for his rescue. One man of science, among the most eminent of his time—Carnot, was on the Terrible Committee: had he no means of saving this great philosopher, accused of something as absurd and fabulous as witchcraft? There was another, much more nearly related to Lavoisier in his pursuits—a member possessed of no small influence in the Convention, and who had in the Committee of Public Instruction succeeded in carrying some most important measures—Fourcroy was that man; and he had often employed his extraordinary powers in explaining and enforcing the great discoveries of his master, as well as in sounding his praises to crowded audiences assembled from every part of the world. Fourcroy could never have feared to receive the answer of the savage, Coffinhal, that the Republic had philosophers enough; and it is to be hoped that Fourcroy did not consider there would be philosophers enough if his master were to disappear from among their number. The courage shown by the virtuous Hallé might have been expected from Fourcroy, in whom its display would have been incomparably safer. His interposition would also have been much more powerful; nay, we know that he did interpose, with effect, for another member of the Academy, M. Darcet, whom he saved from the guillotine. No explanation has ever been given of the neutral position maintained by him in Lavoisier's apparent murder. This only we know, that he remained in his place, both as a member of the Convention and of the Committee; and we know, too, how impossible it would

have been to retain Halley or Maclaurin in theirs, had the sacred head of Newton been threatened by the sacrilegious hands of their colleagues. The charge against Fourcroy amounts to no more; for there is no evidence whatever to support the accusation often brought against him, that he had instigated the atrocious crime which placed all the republic of letters in mourning, and covered that of France with infamy hardly to be effaced. M. Cuvier tells us that the "most strict researches had left him unable to discover the least proof in support of this horrid charge, and he states that this imputation "had been the torment of M. Fourcroy's life."* This is very credible; the charge is hardly credible at all. But men's admiration of Hallé will remain for ever; and if their suspicions of Fourcroy should ever be removed, they must at least regard his want of courage with contempt rather than pity.

The great man whose life was thus sacrificed, was as much to be loved in private life as he was to be revered among philosophers. His manners were simple and engaging, his generosity unbounded, his conduct without reproach. His case formed no exception to the general rule, which seems almost always to forbid genius from descending in families, for he died childless. His widow, a person of remarkable abilities and great information, shared in his pursuits, and even took upon herself the task of engraving the plates that accompanied his 'Elements.' She survived him many years, and late in life was married to Count Rumford, whom she also outlived.

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* Eloge de Fourcroy, Mém. de l'Institut, An 1810. (Tome XI., Phys. et Math.)

From the accurate detail into which I have entered of Lavoisier's history, no difficulty remains in forming an estimate of his merits as a great teacher of science. He possessed the happiest powers of generalizing, and of applying them to the facts which others had discovered, often making important additions to those facts; always, where any link was wanting to connect them, either together or with his conclusions, supplying that link by judiciously-contrived experiments of his own. He may most justly be said to have made some of the most important discoveries in modern times, and to have left the science of chemistry with its bounds extended very far beyond those within which he had found it confined when his researches began.

It is, however, fit that we make the important distinction between the two classes of his theories: those which, being founded upon a rigorous induction, and not pushed beyond the legitimate conclusions from certain facts, stand as truths to this day, and in all probability will ever retain their place; and those which, carried incautiously or daringly beyond the proper bounds of him who is only *naturæ minister et interpres*, have already been overthrown—never, indeed, having reposed upon solid foundations.

1. Of the first class is his important doctrine of calcination—justly termed by him, oxidation,—by which he overthrew the leading doctrine of Stahl, and shewed that metals do not part with anything in passing from the reguline state, but, on the contrary, absorb and fix a gas—proved by other philosophers to be oxygen gas. This, his capital discovery, stands, and in all probability will ever stand, the test of every inquiry. We know of

no calcination without oxygen—we know of no metallic oxygenation without calcination.*

2. The importance of the blow thus given to the theory of phlogiston induced him to follow it up by denying that combustion is a process which evolves any component part from bodies; but, on the contrary, that, like calcination, it always consists of some other substance being added to, or united with, the inflammable body.

3. The ascertaining the nature of fixed air, that is, the combination of oxygen gas with the carbonic principle, and the ascertaining also the existence of that principle, is another discovery of the same great master; and we owe it to the well-contrived experiments by which he proved it.

4. The analogy of the diamond to this carbonic principle is another discovery of his, though he did not make the final step of shewing or even suspecting the identity of the two bodies.

5. The composition of sulphuric and of phosphoric acid, and perhaps of saccharic too, were first clearly explained by his experiments, and by his judicious and original reasoning upon the experiments of others.

6. There is more doubt of the composition of the atmosphere having been first proved by him. Certainly its nature was by him first fully ascertained; but it was plainly known to Priestley at an earlier date. Lavoisier, however, added much to our accurate knowledge of the function

* If it should be said that metals absorb oxygen when dissolved in oxygenous acids, we answer, that still they are in the state of calx or oxide, though united to an acid menstruum.

of respiration; and the discovery of hydrogen being evolved by it as well as carbon, was undeniably his.

7. We have seen that to the two great discoveries of oxygen and the composition of water, he can lay no claim. Yet let it be borne in mind that his statement of both doctrines was more precise and clear than any which the authors of the experiments and original framers of the theory had given. As regards the latter doctrine, the obscurity of Mr. Cavendish's language, even of Mr. Watt's though in a much less degree, has been observed upon already. But we need only consider Dr. Priestley's view of the air he had discovered, and the name he gave it, in order to be satisfied how confused were the notions derived from the phlogistic theory, and how they obscured his naturally acute vision. When he called it dephlogisticated air, he intended to say that air, the atmosphere, parts with phlogiston, and the residue is oxygen gas. But then if phlogiston be added, it should again become common air. Now he held the calcination of metals to be the evolution of phlogiston, therefore this operation should have restored the gas to the state of common air. But, instead of that, it absorbed it altogether. Again! the residue, when common air is deprived of the dephlogisticated portion, is another air which he called phlogisticated, because it contained more phlogiston than the common air. But how by this theory could the union of such a phlogisticated air with a dephlogisticated air make the common air? By the hypothesis, that air with phlogiston added is azote, with phlogiston subtracted is oxygen gas. Therefore mixing the two, you should have produced, not the air that had been phlogisticated in making the one, dephlogisticated in making

the other, but double the quantity operated upon.* Such was the load of absurdity and contradiction under which the favourite hypothesis of the day placed Priestley entirely, Cavendish to a great degree, Watt in some sort; such was the weight of prejudice against which Lavoisier had to contend; such was the maze of error from which he boldly broke loose and extricated chemical science. It is his glory that he first effected this emancipation; and it is no small proof of his merit, that for many years he remained almost alone among the philosophers of his age, and even his own countrymen, how prone soever to adopt French discoveries, in maintaining opinions from which there is now, after the lapse of little more than half a century, not a single dissenting voice all over the scientific world.

We are now to mark wherein he was led astray by the love of theorising carrying him too far. He was not content with shewing that combustion, contrary to the phlogistic doctrine, proceeds from a union of the burning body with other bodies; but he regarded the body uniting as always the same, to wit, oxygen. Observing the fact of many bodies burning in oxygen gas, and of most other gases being unfit for supporting flame, he generalized too much, and inferred that all combustion consists in the union of that gas with the inflammable body.—Again: he regarded the heat and light given out in the process as wholly proceeding from the gas, as having kept the gas when latent in its aëriform state, and as given out in a sensible form when the gas becomes

* If common air (a) − Phlog. = ox. gas, and com. air (a) + Phlog. = azote; Ox. gas + azote = not a, as it ought to do, but 2 a.

fixed in a liquid or a solid state.—Lastly: observing that the union of many bodies with oxygen produced acids, he generalized too much this fact, and inferred that all acids contain oxygen, which he thence called by that name, as denoting the acidifying principle. Now all these inferences are groundless, and therefore this portion of his theory is to be rejected. He is to be followed implicitly in rejecting Stahl's principle; the doctrine of phlogiston he for ever overthrew. His own theory, the doctrine which he substituted in place of the one which he had destroyed, is liable to insuperable objections; at least when carried to the length which he went.

In the *first* place, not only may oxygenation take place without any evolution of either heat or light, but combustion. The mixture of many substances together evolves heat, and a great degree of heat, without the presence of oxygen—or if oxygen be present in some of these cases, it is not operative in any way—it is not disengaged, and is not in the form of a gas to be absorbed. Thus, much heat is caused by the mixture of sulphuric acid and water; some heat by the mixture of alcohol and water. Lime when slaked by water produces violent heat, sometimes accompanied with light also, flame as well as redness appearing. The union of iron with sulphur in vacuo causes great heat and the emission of bright light. The exposure of metals and other inflammable bodies to gases which contain no oxygen, as chlorine, produces red heat and flame. Therefore, although it is very true that we know of no instance in which combustion takes place without the union of the combustible body to some other, and the formation of a new substance, yet it is not true that oxygen alone

causes combustion, and that no body can burn but in oxygen gas.

Secondly. The facts are all against his doctrine, that the heat and light comes from the fixation of the gas. Experiments on the capacity of bodies for heat have clearly shewn this. But the simple fact of well-known explosions, as of gunpowder, disproves his theory—for here, instead of the heat and light coming from the gas being reduced to a solid state, a gaseous body is formed two or three hundred times the bulk of the solid exploded.

Thirdly. There are many acids which have no oxygen in their composition, and there are many bodies containing oxygen which have none of the qualities of acids. The first part of this proposition was not certainly known to Lavoisier, and he assumed that the acids which had not yet been decomposed would be found to contain oxygen. The second part of the proposition was known to him, and ought to have checked his generalization. We now know many acids which contain no oxygen at all. Muriatic acid, a compound of chlorine and hydrogen; prussic acid, a compound of hydrogen, nitrogen and carbon; hydro-bromic; fluoric-acid; ferro-cyanic acid; sulpho-cyanic; hydro-selenic; hydriodic: xanthic. Even if fluoric be omitted, here are nine undeniable acids, and all without a particle of oxygen in their composition. Again, the mere fact of calcination should have prevented him from so generalizing, for all calces contain oxygen, and many of them have no acid qualities. Indeed, his own conjecture, since fully confirmed by experiment, that the fixed alkalis are oxides, is a still more striking disproof of his

theory; for it appears that he might just as well have called oxygen the alkalizing principle as the acidifying, or rather much better, since all the alkalis save one contain it and the alkaline earths to boot. But he also should have recollected that no acid of them all contains so much oxygen as water, and yet nothing less like an acid can well be imagined. We now have still further instances of the same kind against this theory, and which might justify us in calling hydrogen the acidifying principle as well as oxygen. Upwards of two hundred acids contain hydrogen either with or without oxygen present. Hence he might really have reckoned hydrogen the acidifying principle upon fully better grounds than support his choice of oxygen; and the truth appears to be, that there is no one substance which deserves the name.

It is, then, quite clear that M. Lavoisier committed a great error in his induction, and that he framed a theory which was in the extent to which he pressed it wholly without foundation—not merely without sufficient proof from the facts, but contrary to the facts. Newton gives it as a fundamental rule of philosophising, that we are to state the inferences from phenomena with the exceptions which occur, and if a first induction should be made from imperfect views of the phenomena, then to correct it by the exceptions afterwards found to exist. But from this rule Lavoisier has departed entirely: because, though subsequent experiments have greatly increased the number of the exceptions, yet there were many striking ones at the time he formed his system, and these were left out of view in its formation.

After all the deductions, however, which can fairly be made from his merits, these stand high indeed, and leave

his renown as brilliant as that of any one who has ever cultivated physical science. The overthrow of the Phlogiston Theory, and the happy generalizations upon the combinations of bodies, which we owe to his genius for philosophical research, are sufficient to place him among the first, perhaps to make him be regarded as the first reformer of chemical science, the principal founder of that magnificent fabric which now fills so ample a space in the eye of every student of nature.

APPENDIX.

Acids known to contain no Oxygen.

Muriatic acid, (Hydro-chloric; Chlorine and Hydrogen.)
Prussic acid, (Hydro-cyanic; Hydrogen, Nitrogen and Carbon.)
Bromine.
Hydro-Bromic acid, (Bromine and Hydrogen.)
Fluoric acid, (Fluorine and Hydrogen.)
Ferro-cyanic acid, (Iron, Azote, Carbon and Hydrogen.)
Sulpho-cyanic, (Sulphur, Azote, Carbon and Hydrogen.)
Hydriodic, (Iodine and Hydrogen.)
Hydro-selenic, (Selenium and Hydrogen.)

Acids known to contain Hydrogen with or without Oxygen.

Muriatic, (or Hydro-chloric.)	Formic.	Acetic.
Prussic, (Hydro-cyanic.)	Oleic.	Tartaric.
Hydro-bromic.	Stearic.	Citric.
Hydro-fluoric.	Capric.	Malic.
Hydriodic.	Butyric	Benzoic.
Hydro-selenic.	Crotonic.	Gallic.
Ferro-cyanic.	Racemic.	Succinic.
Sulpho-cyanic.	Cetic.	Saccholactic.
	Cholesteric.	
	Ambreic.	

And at least 150 more; as oxalic is perhaps the only vegetable acid which has no hydrogen.

ROYAL
BOMBAY
BRANCH
OF THE
ASIATIC
SOCIETY

Engraved by J. Brown.

GIBBON.

London. Henry Colburn. 1846.

GIBBON.

THE biography of illustrious men, men whose history is intimately connected either with the political events of their times, or with the progress of science or of learning, has ever been deemed one of the most useful as well as delightful departments of literature; nor does it yield to any in the capacity of conveying the most important instruction in every department of knowledge. It has accordingly been cultivated in all ages by the most eminent men. Invaluable contributions to it have been afforded by the individuals themselves whose lives were to be recorded. Their correspondence with familiar friends is one source of our knowledge regarding them; nay, it may almost be termed a branch of autobiography. Who does not value Cicero's letters above most of his works? Who does not lament that those of Demosthenes are not more numerous and better authenticated? But some have been in form, as well as in substance, their own biographers. Nor does any one accuse Hume and Gibbon of an undue regard to their own fame, or of assuming arrogantly a rank above their real importance, when they left us the precious histories of their lives. On the contrary, their accounts of other men contain few pages more valuable to the cause of

truth than those which they have left of their own studies. "Ac plerique suam ipsi vitam narrare, fiduciam potius morum quam arrogantiam arbitrati sunt: nec id Rutilio et Scauro citra fidem aut obtrectationi fuit. Adeo virtutes iisdem temporibus optime æstimantur quibus facillimè gignuntur." (Tacit. 'Vit. Ag.' cap. i.)

Guided in part by the light of his own description, in part by that which his correspondence sheds, we have traced the history of one of these great historians. We are now to follow that of the other with similar advantages from the lights of his own pen.

Edward Gibbon was descended from a considerable and ancient family settled in the county of Kent, and landowners there as early as the beginning of the fourteenth century. Their respectability may be judged from the circumstance that in Edward III.'s reign John Gibbon, the head of the house, was king's architect, and received the grant of a hereditary toll in Stonar Passage, as a reward for the construction of Queenborough Castle. One of the family, in Henry the Sixth's reign, married Fiennes, Lord Say and Sele, the Lord High Treasurer; and from him the historian descended in the eleventh generation, belonging to a younger branch of the Gibbons which settled in London in the reign of James I., and engaged in commerce. His grandfather acquired in these pursuits considerable wealth, and was at the end of Queen Anne's reign commissioner of the customs, together with Prior the poet. His family had always been of the Tory party, and his promotion came from the Queen's Tory Ministry. In 1716 he became a director of the South Sea Company, and he was proved to have then been possessed of above a hundred thousand pounds, all

of which he lost, except a pittance granted by the authors of the violent proceedings that confiscated the estates of the directors; one of the most flagrant acts of injustice, and ex post facto legislation, of which history affords any record. All were compelled to disclose their property; exorbitant security for their appearance was exacted; they were restrained from making any mortgage or transfer or exchange. They prayed to be heard against the bill; this prayer was refused; three-and-thirty persons were condemned, absent and unheard; the pittance allotted to each was made the subject of unfeeling jest; motions to give one a pound, another a shilling, were made; the most absurd tales were told, and eagerly believed, resting on no kind of proof, and on these the votes of the House of Commons were passed. The outrages of despots in barbarous countries and dark ages seldom can go beyond this parliamentary proceeding of a popular legislature in a civilized community and an enlightened age, the country of Locke, Newton, Somers, and while yet their immortal names shed a lustre on the eighteenth century of the Christian era. Nor is it possible to contemplate this legislative enormity without reflecting on the infirm title of the very lawgivers who perpetrated it. The act was one passed in 1720 by the first septennial Parliament during the four years which it had added to its lawful existence, having been chosen in 1715 for only three years, and extended its existence to seven. It is a creditable thing to the historian that, believing the Protestant succession to have been saved (as it certainly was) by that measure, he always gave his vote against its repeal. Nor was the spirit of the people more inclined to justice than that of their unchosen

representatives. Whatever may have been the unpopularity of the original Septennial Act in those Jacobite times, the violence done to the South Sea Directors was amply justified by the public voice. Complaints were indeed made, and loudly; but it was of the mercy shewn to those whom the fury of disappointed speculators called "monsters," "traitors," "the cannibals of Change Alley." Their blood was called for in a thousand quarters; and the shame of the Parliament was loudly proclaimed to be, that no one had been hanged for the crime of having engaged in an unsuccessful adventure. So regardless of all reason and justice, and even common sense, is the accursed thirst of gold that raises the dæmon of commercial gambling!

When Mr. Gibbon's fortune, amounting to 106,000*l.*, was confiscated, two sums being proposed as his allowance, fifteen thousand and ten thousand, the smaller was immediately adopted; but his life being prolonged for sixteen years, his industry was so fruitful that he left nearly as large a fortune as the violence of Parliament had robbed him of. Dying in 1736, he left the historian's father, his son, and two daughters, one of whom married Mr. Elliott of Cornwall, afterwards Lord Elliott. The celebrated author of the 'Serious Call,' William Law, lived as tutor in the family, and is supposed to have designed the son by the name of Flatus in that popular work. A lady of the family still settled in Kent, married Mr. Yorke Gibbon, the father of Lord Hardwick; and by another, the historian was related to the Actons, who afterwards settled in Naples.

The estates left by the Director were situate at Putney in Surrey, and in Hampshire, near Petersfield, in which

he possessed so large an influence that his son represented it in Parliament. Edward the historian was born at Putney, April 27, 1737, his mother being a daughter of Mr. Porten, a merchant in London, who lived near the church of that village. Mr. Gibbon afterwards sat for Southampton, and continued in Parliament until 1747. Edward's infancy was exceedingly delicate, and his life with difficulty preserved. He was treated with unceasing care by his maternal aunt, Mrs. Catharine Porten; and it was not easy to teach him reading, writing, and accounts, though quick enough of capacity. At seven years of age he was placed under John Kirkby, a poor Cumberland curate, as private tutor, and author of some popular works; and two years after, he was sent to a private academy, kept by a Dr. Wooddeson, at Kingston. Next year his mother died, and soon after her father became bankrupt; so that his kind aunt was driven from Putney to keep a boarding-house at Westminster School, and his father, inconsolable for his wife's death, left Surrey to bury himself in his Hampshire property. Mrs. Porten took her sickly nephew with her to Westminster, where, in the course of two years, he "painfully ascended into the third form." But his health continued so feeble, that it became necessary to remove him, and he was consigned to the care of a female servant at Bath. As his sixteenth year approached he became much more robust, and he was placed under Mr. Francis, Sir Philip's father, who then taught at Esher in Surrey. Soon, however, his relations found that the ill-principled tutor preferred the pleasures of London to the duties of his school; and they removed his pupil to Oxford, where he was entered as a gentleman-commoner of Magdalen

College, 2nd April, 1752, a few weeks before he had completed his fifteenth year.

Hitherto it may truly be said, that, partly from his feeble health, partly from the neglect of his instructors, he had been taught little, and left to acquire information either by his own efforts or the conversation of his excellent aunt. Fortunately she was a well-read person, of sound judgment, and correct taste; and she delighted to direct, and to form his mind by pointing out the best books, and helping him to understand them. His reading, however, was necessarily desultory, and in the classics he made but an inconsiderable progress, although he had acquired a competent knowledge of the Latin tongue. But the bent of his inclination had already disclosed itself. While he read other books, he devoured histories. The 'Universal History' was then in the course of publication, and he eagerly pored over the volumes as they successively appeared. In the summer of 1751, he accompanied his father on a visit to Mr. Hoare, in Wiltshire, and finding in the library the continuation of Echard's 'Roman History,' he was deeply immersed in it when summoned to dinner. Returning to Bath, he obtained that portion of Howell's 'History of the World,' containing the Byzantine period; and he soon had traversed the whole field of oriental story—nay, more, he had studied the geography connected with that history, and had examined the different chronological systems which bore upon the subject; those of Scaliger, and Petavius, of Marsham, and Newton; which of course he could only know at second-hand; and he arrived at Oxford before the age of fifteen complete, with a stock of erudition, which, he says, might have puzzled a Doctor, and a degree

of ignorance, of which, he ingenuously confesses, a schoolboy would have been ashamed.

Being entered a gentleman-commoner of his College, he at once from a boy was transformed into a man, in so far as regarded the persons with whom he associated, the respect with which he was treated, and the independence which he enjoyed. The picture which he has left us of the studies at that time pursued, the discipline of the place, and the assiduity of the teachers, is very far indeed from flattering. The account given by Adam Smith, and which has been the subject of so much ignorant, so much prejudiced, and, I fear we must add, so much interested vituperation, is more than fully borne out by Gibbon's testimony. Under Dr. Waldegrave, his first tutor, he learnt little; but he delighted in that reverend person's conversation. Under the successor, whose name is charitably withheld, he learnt nothing; paying the salary and only receiving a single lesson. The sum of his obligations to the University is stated to be the reading, without any commentary or explanation, three or four plays of Terence in fourteen months of academical *study*. Meanwhile his habits became irregular and expensive, and no effort whatever was made to prevent him from falling into idle and even vicious courses, or to reclaim him after he had gone astray. No care whatever was given to his religious instruction; and as he always had a turn for controversial discussion, he soon fell, thus abandoned, into a snare too often spread for neglected youth, too easily effectual to their ruin. The study of Middleton's 'Free Inquiry,' made him confound the Protestant with the Popish dogmas; and, induced by Mr. Molesworth, a friend who had embraced

Romanism, he, after a short interval of hesitation, embraced the principles, and bowed to the authority of an infallible church. He became reconciled to Rome, could not again return to the orthodox, but Protestant shades of Magdalen, and was sent to Lausanne by his father; after an ill-judged attempt to reclaim him, by placing him under the superintendence of Mallet, the poet, who with his wife had thrown off all Christianity, perhaps even all religion whatever.

In contemplating the account given both by Smith and Gibbon, of the great University, in which both resided without being instructed, the friend of education feels it gratifying to reflect that the picture which both have left, and the latter especially, finds no resemblance in the Alma Mater of the Hollands, the Cannings, the Carlisles, the Wards, the Peels. The shades of Oxford under the Jacksons, the Wetherells, the Coplestones, (friendly, learned, honoured name, which I delight to bring into contrast with the neglectful tutors of Gibbon,) bears no more resemblance to that illustrious seat of learning in his time, than the Cambridge of the Aireys, the Herschells, the Whewells, the Peacocks, the Gaskins, offers to the Cambridge in which Playfair might afterwards, with justice, lament, that the *Mécanique Céleste* could no longer find readers in the haunts where Newton had once taught, and where his name only was since known.

At Lausanne Gibbon was placed under the care of M. Pavilliard, a pious and well-informed Calvinist minister, who, by gentle and rational discipline, brought him back to the Protestant faith, of which he testified his deliberate approval by receiving the Sacrament, Christmas, 1754. M. Pavilliard also successfully guided his studies

during five of the most important years of his life. In the Latin Classics he made a great and easy progress; he began the study of the Greek; he learned the outlines of general knowledge, and as much of natural science as he ever had any taste or capacity to master. His active mind had even entered into speculations connected with literary subjects; and he corresponded with Crevier, Gesner, and other men of letters, on points connected with the higher departments of classical learning. French literature occupied naturally a considerable share of his attention in a country where that language alone was spoken, and where Voltaire resided. At the private theatre of the patriarch he was a frequent attendant, and heard the poet declaim his own fine verse; but he confesses that he was never distinguished in the number of the admirers who crowded those assemblies, or in the more select circle which frequented the hospitable table of the great poet.

Beside his study of the Classics and of the French authors, he exercised himself in composition, and acquired great facility both in writing English and French, and even Latin, by translating and retranslating from the three languages. But the chief portion of his time was devoted to a careful perusal of the great Latin authors, all of whom he most diligently examined with the aid of their commentators, and all of whom he abstracted generally in his journal. After carefully going through Cicero's whole works with the variorum notes of Verburgius's folio edition, he completed the other and more laborious branch of this extensive plan during the last twenty-seven months of his residence at Lausanne. There is hardly upon record so diligent a pre-

paration for literary exertion; and be it observed, that though he had now attained and passed his twenty-first year with habits of study well fitted to excite emulation and urge the boldness of youth into attempts at obtaining literary fame, or at least into experimental trials of his strength, he passed all the time of his studious residence at Lausanne without any effort of composition, and never seems to have thought of becoming an author after the boyish essay on the Age of Socrates, which he had made during his first Oxford vacation, and which he afterwards committed to the flames.

It was during this period of his life, alike happy and useful, that he became, or dreamt he became, enamoured of Mlle. Curchod, daughter of a venerable pastor. She returned his flame; but on his father very peremptorily "forbidding the banns," alarmed it should seem quite as much with this Calvinistic as he had before been with the Romish conversion, the dutiful son broke off the connexion in a letter, which ended with, "C'est pour quoi, Mlle., J'ai l'honneur d'être votre très-humble et très-obéissant serviteur, E. G.;"* and which forms one of the reasons why I have expressed some doubt of his really having felt the heat of the tender passion. The story is often told of his bodily weakness having, when on the floor at her feet, prevented him from rising, and his bodily weight kept her from assisting him, so that the bell was resorted to, in order that extraneous help might be procured in the dilemma. Be this as it may, the lady was reserved for a higher destiny. She became the wife

* This curious particular is not given by himself, but by his friend, M. Suard.—('Mémoire.')

of Necker, soon after the first minister of France; and no preceding circumstance ever prevented her first admirer from continuing to be her respected and intimate friend in her exaltation.

But he formed another friendship at Lausanne, which proved much more important to his happiness through life. He became intimately acquainted, from similarity of age, disposition, and pursuits, with M. Deyverdun, a young man of respectable family, amiable character, and good education. Their correspondence continued ever after to be familiar and pleasing; and the loss of his society was the principal, if not the only regret which Gibbon felt when his return to England took place.

This happened in May, 1758, by the consent of his father, who received him with perfect kindness, unabated by the second marriage which he had recently contracted. His stepmother was a woman of amiable character and of excellent sense; and a lasting friendship appears to have subsisted between them during her whole life. His kind aunt, however, Mrs. Porten, was naturally the first object of his affections, and to her he hastened upon his arrival. The principal evil which attended his long exile was, that at the important age when accidental circumstances are so plastic in forming the habits, he had ceased to be an Englishman. He wrote, spoke, and thought in a foreign language; and as his allowance was too moderate to suffer any expense not absolutely necessary, he never had associated with his countrymen who passed through or sojourned in Switzerland. On his return home, therefore, he found himself as a stranger in a far country; and as his father, now residing chiefly at Buriton in Hampshire, had long given up all connexion

with London society, the son seems, during the nine months that he passed there of the first two years after his arrival, to have been only intimate with the Mallets and with Lady Harvey, (the present Lord Bristol's grandmother,) to whom they had introduced him. At Buriton, too, he enjoyed the pleasures of a large library; he resumed his classical studies; he read, he abridged and he commented; finally he turned his thoughts towards composition. Mallet advised him to study Swift and Addison; he studied them and he admired, but he ran counter in every one particular to their example; and in 1761 he published his essay 'Sur l'Etude de la Littérature,' the work of about six weeks nearly two years before, but withheld from the press through dread of its failure.

Though no one can deny that this work shews both extensive reading and a habit of thinking, and though it is the production unquestionably of a clever man, yet must we admit it to be in some most essential particulars singularly defective, and, in some respects, rather a puerile performance. The cardinal fault is the want of any definite object. Who can tell what the author would be at, if it be not to display his reading, his epigrammatic talent, and his facility in writing French? It is said, in the address to the reader, that the author's design was to "vindicate a favourite study, and rescue it from the contempt under which it was languishing." But what is the favourite study? Literature means the whole of learning in one sense; and, in a more restricted acceptation, it means learning apart from science. But what occasion to vindicate learning? Who accused, who contemned it, at least in the middle of the eighteenth

century? The vindicator came five or six hundred years too late to the defence. The champion hastened to the *rescue* long after the fight was over, and was won. His ancient reading might have reminded him of things out of time and things out of place. Learning might be figured addressing him with thanks, and, also, in her turn, vindicating him from the charge of not knowing his alphabet, as Tiberius condoled with some tardy addressers from Troy, on the occasion of his son's death, by condoling with them on the loss of their distinguished countryman Hector. A bystander might have applied to his panegyric on Letters the question put to the eulogist of Hercules.

Gibbon, himself, seems fully aware of the radical defect in his work, that he applies the term "literature" loosely and variously, instead of giving it a definite sense. If classical learning be the principal subject of his remarks, it is equally certain that he sets out with resting the glory of man upon his achievements in the sciences, and soon declares his regret that mathematics and physics should have in modern times thrown the sister branches of philosophy into the shade. His observations, too, are scattered over the whole range of knowledge, and not always confined to the knowledge of the ancients. But suppose they were? Who can draw the line between ancient and modern, or suppose that the study of the poets, the orators, the historians, the philosophers of antiquity, can be different from the general study of poetry, rhetoric, history, and philosophy? He is himself quite conscious of the total want of arrangement that pervades his work. "A number," he says, "of remarks and examples, historical, critical, philoso-

phical, are heaped on each other without method or connexion, and, if we except some introductory pages, all the remaining chapters might indifferently be reversed or transposed." ('Life,' chap. v.) Though his candour be deserving of our approbation, and though we must also agree in his observation that "the imitation of Montesquieu has been fatal," there is little chance of any one subscribing to the complacency with which he regards his obstinate defence of the early history of Rome. Assuredly nothing can be less creditable to his sagacity; nor can one so difficult on severe subjects of belief be excused for so easily swallowing down the poetical fictions of the earlier Roman annals.

The folly of choosing to write in a foreign language he hardly excuses by saying, that it was partly with a view of furthering the plan of his father to obtain some diplomatic appointment, but chiefly from the vanity of being a singular instance in this kind. The success, however, of the publication abroad was aided by this circumstance, but it was not sufficiently great to justify the author; while at home the work could not be said to have any success at all. It was little read beyond the circle of the writer's few friends, and it was very speedily forgotten.

A short time before this publication, June, 1759, he had joined the Hampshire militia as captain, his father having the rank of major. During two years and a half, that is, till the end of the war, he was thus condemned, he says, "to a wandering life of military servitude." He complains of the loss of precious time thus occasioned, and the souring of the temper by ruder intercourse without any adequate compensation for either evil, beyond

the restoring him to English habits and rubbing away the foreign rust of his Swiss education. It is singular enough that, at the close of this long and thankless interruption, on his resuming his studious habits, he hesitated between Greek and Mathematics, when a letter of Mr. Scott (whom I have mentioned in the life of his teacher Simson*) traced to him a map of the country, which seems to have appeared too rocky and arid for his taste. He now, therefore, applied himself to Greek, which he had hitherto almost entirely neglected, having only as yet formed any acquaintance with the monuments of the Attic and the Doric genius through the medium of general descriptions, or through the imperfect reflexion of translations, that preserve not all of the substance and nothing whatever of the diction. His characteristic industry soon accomplished the task of introducing him to the father of poetry; whose immortal song Scaliger had read through in twenty-one days, but with Gibbon's more imperfect knowledge of the Homeric language its perusal occupied as many weeks. He read almost the whole of the Iliad twice in the same year, beside some books of the Odyssey and Longinus's treatise. The other books which he read at the same time were more or less connected with Greek learning.

During the time spent in the militia, he had frequently revolved in his mind the plan of some historical work, and had successively chosen as his subjects, the Expedition of Charles VIII. into Italy, respecting which he went so far as to discuss at large that Prince's title to the crown of Naples, contrasted with the rival claims of

* Vol. I., Lives of Philosophers.

the Houses of Anjou and Aragon—the wars of the English Barons—the lives of the Black Prince, of Sir Philip Sidney, and of Montrose; but he at length fixed on Raleigh, and read with diligence all the works which treat of that remarkable person. After much preparatory labour, he abandoned the design, and thought of the Swiss Confederacy, and of Florence under the Medicis; but before he finally settled to either subject, he went abroad for two years and a half, passing three or four months at Paris, in the most interesting society, and nearly a year at Lausanne, before he crossed the Alps—

"Filled with the visions of fair Italy."

For this important expedition he prepared himself with all his wonted industry. He diligently studied the greater classics; he examined all that the best writers had collected on the topography of Ancient Rome, on Italian geography, and on Medals, going carefully through Nardini, Donatus, Spanheim, D'Anville, Beaufort, Cluverius, and other modern writers, as well as Strabo, Pliny, and Pomponius Mela, and he filled a large commonplace book with notes and extracts, as well as disquisitions on important passages of Roman antiquities and history. Thus furnished perhaps better than any other traveller ever was for his expedition, he fared forth in the spring of 1764—

"To happy convents, bosomed deep in vines,
Where slumber Abbots purple as their wines;
To isles of fragrance, lily-silvered vales,
Diffusing languor on the panting gales;
To lands of singing or of dancing slaves—
Love-whispering woods, and lute-resounding waves;
But chief her court where naked Venus keeps,
And Cupids ride the Lion of the deeps."—*Dunciad.*

The greater number of the Italian cities he visited, but it was in Rome that he made the longest stay, remaining there between four and five months of the eleven which he passed beyond the Alps. It was also at Rome that he formed the plan of writing his great work. The idea entered his mind while, "on the 15th of October, he sat musing amidst the ruins of the Capitol, while bare-footed friars were singing vespers in the Temple of Jupiter," ('Life,' chap. vi.,)—a striking picture surely, and one in which the image of the Roman Decline and Fall appears to be shadowed forth with sufficient distinctness. To the original idea, indeed, it was still more akin: for he at first only contemplated a History of the Eternal City's decay.

His second visit to Lausanne had given him the important accession to his comfort of Lord Sheffield's acquaintance, then Mr. Holroyd, who accompanied him into Italy, and proved ever after his most intimate and confidential friend. He was a person of cultivated mind, but filled more with details than with principles, and those details relating to statistics and commercial facts, rather than to the more classical pursuits of Gibbon. His opinions were framed on a contracted scale, and the matters presented by the old and unphilosophical school. He had no genius in his views, no point or spirit in his composition; he frequently, however, addressed his moderate number of readers through the press, each commercial question, as it were, producing a work of accurate detail, of narrow views, of inconsistent reasoning, and of unreadable dryness. But his life of bad pamphlets was varied by a gallant resistance, which he made at the head of his Yeomanry Cavalry, to the No-Popery mob of

1780, and he also had the good taste to cultivate the society of abler and more lettered men, in consequence probably of his intimacy with Gibbon, who, during the twenty years of his life passed in England after his return from Italy, was domesticated in the Holroyd family. He was also returned to Parliament by Bristol, after Burke's opposition to the American war had caused his rejection by that city; and having married one of Lord North's amiable and gifted daughters, he supported the measures of that able, though unfortunate statesman, and was by him raised to the Irish peerage. Whatever may have been his deficiencies as a political writer, in his personal and domestic character he was blameless; and the constancy of his attachment to his celebrated friend was a source of comfort and of credit to both.

On his return in June, 1765, Gibbon resumed the domestic relations which his travels had only interrupted, and found great satisfaction in the friendship of his own family, especially of his step-mother, an amiable, kindly, and sensible woman. His only real business, however, was the yearly attendance on his militia regiment, in which he rose successively to the rank of Major and Lieutenant-Colonel Commandant. But though this occupation only lasted a month, he found it became intolerable, and in 1770 resigned his commission. He describes these five years between his return and his father's death, which happened soon after his resignation, as the most irksome of his life. And the void which he felt from want of regular and professional employment, he has described in such a way, that the record thus left ought for ever to deter men from embracing a merely literary life,

whose circumstances are not such as to make its gains, its moderate and precarious gains, a matter of necessary consideration. He enjoyed fully the ease of comfortable, though not of luxurious, or even affluent circumstances; he had a cheerful home, and if without the interest, was also free from the cares of a family; his time was at his own command; and he lived in a library while at Buriton, and in the best society when in London. Yet listen to his moan over the want of that sovereign authority which a social position exercises, but so as to make its service perfect freedom compared with the slavery of nullity and *ennui.* "While so many of my acquaintance were married, or in Parliament, or advancing with a rapid step in the various roads of honour and fortune, I stood alone immovable and insignificant."—"I lamented that at the proper age I had not embraced the lucrative pursuits of the law or trade, the chances of civil office or India adventure, or even the fat slumbers of the Church; and my repentance became more lively as the loss of time was more irretrievable. Experience showed me the use of grafting my private consequence on the importance of a great professional body; the benefits of these form connexions which are cemented by hope and interest, by gratitude and emulation, by the mutual exchange of services and favour." ('Life,' chap. viii.) Then were not the occupations of his studious hours, and especially of his projected works, enough to fill up his time and satisfy his mind? We saw him but lately seated on the Capitol, multa et præclara minantem. Had all these plans vanished without producing any fruit? Not so; he had, in the society of his earliest and most cherished friend Deyverdun, who by yearly visits served to break the monotony of his superabundant leisure, commenced more literary works

than one. The History of Switzerland was chosen for one subject; and the two friends made considerable preparation for its composition by collecting materials, which, when in German, were diligently translated by Deyverdun for the use of Gibbon, to whom the composition was in 1767 consigned. He produced the first book of the History; it was submitted to the judgment of a society of literary foreigners; the author, unknown to them, was present; he heard their sentence of condemnation with pain, but confirmed it in his cooler moments. It was, however, afterwards submitted to a better judge; Mr. Hume approved of it in all respects but the foreign language employed, and strongly recommended a continuation of the work. Gibbon himself, however, sided with the court below, and says in his 'Life' that he committed the manuscript to the flames. This he neglected to do; and though Lord Sheffield in a note has expressed an opinion coinciding with Hume's, he is thought to have destroyed it, possibly from respect for his friend's declared intentions*.

Another work was planned and partly executed during the same period. Gibbon and Deyverdun published in the two years 1767 and 1768 an annual review, entitled 'Mémoires Littéraires de la Grande Bretagne.' To the first volume Gibbon contributed, among other papers, an excellent review of Lyttleton's 'History of Henry II.,' at once acute, candid, and judicious. The second was adorned with an article on 'Walpole's Historical Doubts,' from the pen of Mr. Hume. The dedication to Lord Chesterfield obtained for Deyverdun the appointment of

* Some believe that it is still among the Gibbon papers, the publication of which Lord Sheffield, by his will, positively prohibited.

tutor to his successor, the late Earl; and when a third volume was nearly ready for publication he went abroad with the care of Sir Richard Worsley, and did not return till after the death of Gibbon's father.

A third work also bears date in the same period of listlessness and discontent. It was an answer to Warburton's dream respecting the Sixth Book of the Æneid; and though tinged with a bitterness of spirit to which no anonymous writer should give way, all competent judges have admitted the victory over insolent and dogmatic paradox to have been complete. This was his first publication in his native tongue, and, except his contributions to the periodical work, it was his only appearance through the press during the fifteen years that had elapsed since his Essay came out.

Thus there was no want of either study or literary labour to diversify the learned leisure which yet he found so irksome. The contrast is surpassingly remarkable, which his description presents to the account which D'Alembert has left us, of the calm pleasures enjoyed by him as long as he confined himself to geometrical pursuits. Shall we ascribe this diversity to the variety of individual character and tastes; or to the difference in the nature of those literary occupations; or finally to the peculiarities of French society, affording, as it does, daily occupation too easy to weary, and pleasing relaxation too temperate to cloy? Perhaps partly to each of the three causes, but most of all to the absorbing nature of the geometrician's studies. It seems certain, however, that no life of mere literary indulgence, of study unmingled with exertion, and with continued, regular exertion, can ever be passed in tolerable contentment; and that if the student has not a regular, and, as it were, a professional

occupation to fill up the bulk of his time, he must make to himself the only substitute for it by engaging in some long and laborious work. Gibbon found by experience the necessity of some such resource; and we owe to his sense of it, the 'Decline and Fall of the Roman Empire.'

The preparations for this great work were made with deliberate care; but the composition was deferred for several years, by the anxieties which his father's declining circumstances as well as health occasioned. After many vain efforts to mend his fortune by loans, and by parting with the residence at Putney, all of which means were generously seconded by the son, he died in 1770, partly from mental suffering; and it was not till two years had elapsed, that the heir of a fortune, now become moderate, could finally close the farming concerns of the family and transfer his residence from Hampshire to London. At length, in 1772, he began the work, and so little did he find it easy to "hit the middle tone between a dull chronicle and a rhetorical declamation," that the first chapter was thrice, and the two following ones were twice composed, before he could be satisfied with the effect. Possibly had he given the same careful revision to the subsequent chapters we should have seen a style more chastened; and if his very defective taste in composition had retained the weeds which he took for flowers, at least such confused metaphors would have been extirpated, as "the aspect of Greek emperors towards the Pope being the thermometer of their prosperity, and the scale of their dynasty," (ch. lxvi.)—and "a ray of light proceeding from the darkness of the tenth century;" and such enigmatical wrapping up of his meaning, as "the kindred appellation of Scævola being illustrated by three sages of the law." (ch. xliv.) Certain it is that the

three first chapters are beyond all comparison the most chastely composed of the whole seventy-one.

After three years bestowed upon this work, the appearance of which was somewhat delayed by his being in 1774 returned to Parliament for his cousin Mr. Elliott's borough of Liskeard, the first volume, in quarto, was published in the month of February, 1776. Its success was complete. The praise of Mr. Strahan, which Lord Sheffield greatly values, is not indeed of the most enlightened cast. He extols the diction as "the most correct, most elegant, and most expressive he ever read." But the opinion of the two great historians of the age was more judicious, and it was very favourable. Dr. Robertson, while he objected to some passages as too laboured, and to others as too quaint, praised the general flow of the language, and the peculiar happiness of many expressions; and having read the work with a constant reference to the original authorities, he commends his accuracy, as he does his great industry. He likewise bestows praise on the narrative as perspicuous and interesting; and he terms the style generally elegant and forcible. Of the two last chapters, the fifteenth and sixteenth, he merely says he has not yet read them, but from what he has heard, expects they will give great offence and injure the success of the book. Mr. Hume still more lavishly extols the work; and of the style he commends the dignity, without taking the exceptions which his own very superior taste must have suggested. Of the two last chapters, he says that the author has extricated himself as well as he could by observing a very prudent temperament; he warns him, however, of the clamour which was sure to arise

upon them, and gives a very dismal prediction of the downfall of philosophy, and decrease of taste, which the prevalence of superstition in England was likely to bring about. He also expresses his astonishment that a classical work should have appeared in a country so given up to "barbarous and absurd faction, and so totally neglecting all polite letters." The reception of his own history in all likelihood was present to his memory when he took these gloomy views. He urges Gibbon to continue the work, which he says the learned men of Edinburgh are most anxious to see completed, and mournfully observes, that he speaks without any personal interest, as he cannot expect to see the fulfilment of these wishes. In fact he died a few months after the date of the letter, (March, 1776.)*

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* My learned, able and reverend friend, Mr. Milman, (to whose admirable edition alone I refer in this work,) departing from his wonted and very signal candour, adds a note to the Principal's letter intimating that "his prudential civility is not quite honest," in reference to the passage regarded by Mr. M. as a suppressed opinion, on the celebrated chapters. My knowledge of Dr. Robertson's strict and most scrupulous veracity, makes it quite clear to me that the fact was as he stated it, and that to avoid controversy, (a thing he exceedingly disliked on all occasions, but especially on matters so interesting to his feelings as the truths of Christianity,) he had purposely written his letter before he perused those portions of the volume. Surely he might be excused for not expressing his dissent from or disapproval of the chapters, when it was notorious to all mankind that he had himself discussed the same subject, but with the views of a sincere believer, in the famous Sermon so often referred to by M. Guizot, in his Notes, as containing an anticipated refutation of Gibbon,—notes inserted by Mr. Milman himself in his edition of the History. It might as well be supposed that Mr. Hume differed with Gibbon, because he does not express any concurrence or any approval, except of the prudence of the manner, as that Dr. Robertson

The public voice amply confirmed these important and learned judgments. The first edition of a thousand was exhausted in a few days; two others scarcely supplied the demand; and the Dublin pirates twice invaded the copyright. The volume, moreover, was to be seen not only in the studies of the learned, but in the drawing-rooms of the idle and the gay. On the other hand, the violence of theological controversy was speedily excited by the two chapters; and adversaries of various ranks in the Church, and of every degree of merit, hastened to the conflict, from Lord Hailes and Dr. Watson, afterwards Bishop of Llandaff, down to Mr. Chelsum, a feeble but violent divine, and Taylor, an Arian minister, Vicar of Portsmouth, and alike wrongheaded and enthusiastic. Gibbon admits that for a while the noise stunned him, but he soon found that his antagonists were, with a very few exceptions, far too little prepared for the combat, by the possession of any weapons save zeal, to occasion him any harm, and he resolved to maintain silence and leave his defence to time, and to the body of those readers who had studied his work. This reserve he continued until his veracity was attacked by the charge of false quotations, and then he published his 'Vindication.' Of that work the reverend editor of his Life and History well observes, that "this single discharge from the ponderous artillery of learning and sarcasm laid prostrate

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agreed with him, or did not disapprove the line which he had pursued. Both these great historians assumed that their opinions on the matter must be well known, and could not be mistaken by those their letters were addressed to, Mr. Hume's being written to Gibbon himself, and Dr. Robertson's to Mr. Strahan, the publisher of his celebrated Sermon.

the whole disorderly squadron of rash and feeble volunteers who filled the ranks of his enemies, while the more distinguished theological writers of the country stood aloof." ('Life,' ch. ix., note 3.)

Two years elapsed between the publication of the first and the commencement of the second volume. His curiosity had induced him to attend courses of lectures in anatomy under Dr. William Hunter, and in chemistry under Mr. Higgins; and he read some books of natural history. In 1771 he went to Paris, on the invitation of his friends the Neckers, who had come over to England on a visit, and this excursion occupied six months, which he passed very agreeably, if not very instructively, in the best Parisian society. He was there, from his knowledge of the language and his early habits of foreign residence, more at home than most other strangers who frequent those circles, and there remain testimonies of competent witnesses to his success. Mme. du Deffand describes it as very great indeed, praises his French, applauds also the fulness of his conversation, is pleased with his manners, though she complains that he is much too fond of distinction and overrates the pleasures of French society; she is in some doubt if he is a very clever man, though clear that he is a very learned one; and asserts, among other things, that though he has not the abilities (l'esprit)* of Mr. Hume, "il ne tombe pas dans les mêmes ridicules, mais se comporte d'une manière qui ne donne point de prise au ridicule, ce qui est fort difficile à éviter

* Hume's difficulty in speaking the language, and his awkward though simple and unaffected manners, were often the subject of merriment at Paris; but this very naïveté contributed to the reputation of "le bon David," as he was generally termed.

dans les sociétés qu'il fréquente." (Lett., 284.) Suard gives more credit to his talents, but charges him with being too prepared in his sentences and too anxious to shine, while he allows his conversation to be full and animated. He likewise praises the facility and correctness of his French, though he spoke it with a very strong accent and with extremely unpleasant intonations of the voice.

His return to Parliament somewhat delayed the first volume, but the attendance of some stormy sessions does not appear to have at all interrupted the further progress of the work. And the all but sinecure place of a Lord of Trade, which he accepted in 1779, could have very little influence on the disposal of his time. This favour was opportunely bestowed on him as a recompense, not merely for his steady support in Parliament, but for his drawing up a defence for the British Government against the French claims in 1778; it was written at the request of the Ministers, particularly Lord Thurlow, then Chancellor, and was prepared in concert with the Foreign Office, from which the materials were furnished. The work is allowed to have been respectably executed; and the scurrilous attack upon it by Wilkes, generally set down to the account of factious spleen, had no success. In 1780 he lost his seat in Parliament, at the general election; and soon after published his second and third volumes, which, he confesses, were by no means so well received as the first had been. Lord North's friendship restored him to the House of Commons as member for Lymington, a seat which he retained until Mr. Pitt's dissolution to defeat the famous Coalition in 1784. The Board of Trade had been abolished some months before,

and his income being no longer adequate to a comfortable residence in London, he resolved to pass the rest of his life at Lausanne.

After the publication of his second and third volumes, which bring down the History to the fall of the Western Empire at the beginning of the sixth century, he hesitated for some months whether to continue the work or terminate it at that period. This interval was passed in classical studies, particularly of the Greek poets and historians, but with excursions into the writings of the Socratic school. But

> Medio de fonte leporum
> Surgit amari aliquid quod in ipsis floribus angat.

He found "in the luxury of freedom the wish for the daily toil, the active pursuit which gave value to every work and an object to every inquiry;" and the same want of a regular occupation that had originally given rise to the work determined him to continue it. Before he left England he had nearly finished the fourth volume. He had also been urged by the importunate zeal of Dr. Priestley to enter into a controversy with him on the subject of his two chapters. That indiscreet and angry polemic sent him a copy of his work on the 'Corruptions of Christianity,' civilly intimating that it was intended not as a gift but as a challenge. Gibbon declined the invitation in a sneering letter, questioning whether he or his correspondent best deserved the name of unbeliever. Priestley replied, that Gibbon's honour as well as his principles called for a defence, inasmuch as he had covertly and not with honest openness assailed Christianity. Gibbon's rejoinder declined all further correspondence "with such an adversary." Priestley then stated that their correspondence not being confidential,

he might possibly print it. Gibbon replied, that he alone had the right to authorize such a proceeding, and that he withheld his consent. Priestley, on the ground that the subject of their letters was public, asserted his right to print them; which he did soon after Gibbon's decease. The opinion of the world has long since been pronounced very unanimously, that though Gibbon's sneers were chargeable with impertinence, yet Priestley's whole proceeding was entirely without justification, and his reason for publishing the correspondence utterly absurd.

In the autumn of 1783 Gibbon repaired to Lausanne, where his friend Deyverdun had settled, and took up his abode with him, the house belonging to the one, and the other defraying the expense of the establishment. A year elapsed before the change, the want of his books, and the renewal of his long interrupted acquaintance with his Lausanne friends allowed him to resume his habits of regular work. Some considerable time was also spent in determining whether when distributing his matter on so various and often confused a subject he should follow the chronological order of events, or "groupe the picture by nations," and he wisely preferred the latter course. He then began to work diligently, and finished the fifth volume in less than two years, the sixth, and last, in thirteen months. He must be himself allowed to describe the conclusion of his arduous labours.

"It was," he says, "on the day, or rather the night of the 27th of June, 1787, between the hours of eleven and twelve, that I wrote the last lines of the last page in a summer house in my garden. After laying down my pen I took several walks in a berceau, or covered walk of

acacias, which commands a prospect of the country, the lake, and the mountains. The air was temperate, the sky was serene, the silver orb of the moon was reflected from the waters, and all nature was silent."—"I will not," he adds, "dissemble the first emotions of joy on recovery of my freedom, and perhaps the establishment of my fame. But my pride was soon humbled, and a sober melancholy was spread over my mind by the idea that I had taken an everlasting leave of an old and agreeable companion, and that whatever might be the future date of my History, the life of the historian must be short and precarious." ('Life,' ch. x.)

He returned for a few months to London, in order to superintend the publication of the last volumes. During this visit he lived, both in Sussex and London, in the family of Lord Sheffield, which had in some sort become his own. He remained a few weeks after the publication on his fifty-first birth-day, 27th April, 1788, for which coincidence it was deferred a little while—a strange arrangement, certainly, when the expediency of dispatch had been so strongly felt as to require nine sheets a-week from the printer and three thousand copies of each. Before he left England he had full notice of the storm which the infidel tendency and, still more, the indecency of many portions of the last three volumes, raised against him. To the former charge he had been accustomed, and he was prepared for it; but he expresses much surprise at the second, a surprise not greater than that of his reader, provided he be also a reader of the History.

His return to Lausanne was saddened by the deplorable condition in which he found his friend Deyverdun, reduced by repeated strokes of apoplexy to a state that

made a prolongation of his life not desirable either for himself or for those to whom he was dear. At his death, a year after, he was found to have given Gibbon by his will the option of purchasing the house and garden, or of holding it for life at an easy price; and he preferred the latter arrangement, which allowed him with prudence to lay out a considerable sum in improvements. To Deyverdun, whose loss left him solitary when he had been accustomed to domestic comfort, there succeeded in his friendship and intimacy the family of the Severys; but though their intercourse was close, and their meeting daily, he sighed over the loss of a domestic society still more constant. His chief enjoyment continued to be in his books; nor does his time during the latter years of his life appear to have hung heavy on his hands. The society of Lausanne was select and agreeable; his circumstances were easy for the scale of expense in that country, and must have been improved by the sale of his History, though he nowhere gives us any intimation of the sums which he received, and his editor Lord Sheffield has not supplied the omission; but he probably was about the wealthiest person in Lausanne, and could indulge, as he liked to indulge, in the pleasures of a constant though modest hospitality. Occasional visits of strangers varied the scene; and such as were distinguished, from what country soever, failed not to present themselves at his house. He describes the visit of Prince Henry of Prussia in autumn, 1784, as having proved "both flattering from his affability, and entertaining from his conversation." A yet more illustrious name occurs in his account of 1788, when "Mr. Fox, escaped from the bloody tumult of the Westminster

election, gave him two days of his free and private society." From ten in the morning to ten at night they passed their time together. The conversation never flagged for a moment; there was little of politics in it, but he gave such a character of Pitt as one great man should give of another, his rival. Of books they talked much, from the History to Homer and the 'Arabian Nights;' much about the country and about "my garden," says Gibbon, "which he understands far better than I do." —Let us dwell on the picture he has sketched with truth of one of the most amiable of great men:—"He seemed to feel and to envy the happiness of my situation, while I admired the powers of a superior man, as they are blended in his attractive character with the softness and simplicity of a child. Perhaps no human being was ever more perfectly exempt from the taint of malevolence, vanity, or falsehood."*

This sketch, which adorns the 'Life', is shaded by a dark touch or two in the 'Correspondence.' He cries out loudly against the female accompaniment of the great statesman's travels; asks if Fox will never learn the importance of character, and, strangely enough, contrasts him with his other friend of lesser fame certainly, though

* The likeness would be improved by substituting pride for vanity, but still more by leaving both substantives out. It was the saying of Fox himself, that "praise was good for the Fox family;" but such portion of this weakness as he had was of a very harmless, inoffensive, even amiable cast. Another littleness of the kind was his great love of great people, agreeably to the aristocratic propensities of Whigs. He would speak amusingly enough of "*my* friend the Duke of this," and "*my* friend Lord John that," when designating persons whose title to the distinction rested on their place in the peerage almost alone.

of more correct demeanour, Sylvester Douglas, afterwards Lord Glenbervie, who had in consequence left behind him an universally favourable impression. On Fox, he says, "the people gazed as on a prodigy, but he shewed little inclination to converse with them;" and Gibbon adds, that "the scandalous impropriety of shewing his mistress to all Europe" had given much offence.

During the two or three following years, the French Revolution drove a number, he says "a swarm," of emigrants to Switzerland, and Lausanne was so filled with them that he describes the "narrow habitations of the town and country as occupied by the first names and titles of the departed monarchy." Among others were the Duc de Guignes and Maréchal de Castries; but Malesherbes, the Grammonts, Mounier, formerly President of the National Assembly, and Lally-Tollendal, were those whom he allowed to cultivate his acquaintance. The Prince de Condé and Calonne passed through Lausanne in 1790 on their way to Italy, but he was confined with the gout and another disorder, by which he afterwards fell. The celebrated adversary of Calonne, however, M. Necker, he visited that year at his chateau of Coppet, near Geneva. "I could have wished," says Gibbon, "to have shewn him as a warning to aspiring youth possessed with the dæmon of ambition. With all the means of present happiness in his power, he is the most miserable of human beings; the past, the present, and the future are equally odious to him. When I suggested some domestic amusement of books, building, &c., he answered with a deep tone of despair, 'Dans l'état où je suis je ne puis sentir que le coup de vent qui m'a abattu.'" Well may Gibbon add, "how different from the constant

cheerfulness with which our poor friend Lord North supported his fall." The lover of Mlle. Curchod, not unnaturally, nor yet very tenderly, or even politely, adverts to Mme. Necker's mode of supporting the common calamity which had exiled to their own country, from one which they had grossly misgoverned, a wealthy, a learned family, that affected the station of philosophers. "She maintains more external composure, mais le diable n'y perd rien." There follows a fair and somewhat favourable character of this weak man. Anything more despicable than the figure he makes in Gibbon's sketch can hardly be conceived. The year after he again visited Coppet frequently; and he found Necker's spirits much restored, especially since the publication of his last book, not the 'Bonheur des Sots,' his cleverest work, but probably his answer to Calonne's 'Compte Rendu.'

On the French Revolution Gibbon frequently expresses his strong opinion and warm feelings in perfect accordance with those of Burke; of whom he says, "I admire his eloquence, I approve his politics, I adore his chivalry, and I can almost excuse his reverence for church establishments." Even when Burke's violence had spurned all bounds of moderation, we find the historian, in reference to the famous debate of May, 1791, in his letters exclaiming, "Poor Burke is the most eloquent and rational madman that I ever knew. I love Fox's feelings, but I doubt the political principles of the man and of the party."

In 1791 Lord Sheffield's family paid him a visit, passing some time with him at Lausanne, where they found him settled in an excellent house and handsome garden, commanding a beautiful view of the lake and the

Alps, and the well-cultivated, well-wooded country in the foreground. They were most hospitably received by him and introduced to the pleasant and select society of the place and of the French emigrants, a society in which the historian was the principal person, and was the object of universal respect and esteem. They found him so much under the impression already adverted to respecting the danger of revolution, that he seriously argued in favour of the Lisbon Inquisition, saying, "he would not at the present moment give up even that old establishment." Well might he call Burke a rational madman! Possibly the compliment might not have been returned.

During the next year the French fever had extended itself into Switzerland, and he found the society of Lausanne greatly affected by it. "Never did he know any place so much changed in a year." The storm, however, blew over as far as the Pays de Vaud was concerned, and beyond some arrests for meditated insurrection, nothing took place to disturb the public tranquillity. He therefore deferred for another year the visit which he had promised his friends, with whom he was to have passed twelve months after their return to England. At first the long journey in his infirm state of health made him dread the undertaking; then the apprehension of disturbances in Lausanne induced him to defer his departure. Afterwards he found those fears groundless; but a more serious danger lowered in the month of October, from the French occupying Savoy under General Montesquieu, and threatening the Helvetian territory. Geneva required the stipulated aid of Berne, and above eleven thousand men, in aid of three thousand Genevese, occupied the neighbourhood of Coppet and Nyon. A convention was

concluded, securing the independence of the little republic at the end of October; and the Pays de Vaud being thus for the present secured from attack, Gibbon no longer contemplated the necessity of abandoning his library and garden, and of seeking shelter in Zurich or Constance.

It is singular enough, and sufficiently characteristic of those times, that General Montesquieu one evening, immediately after signing the convention, suddenly entered the room where the Neckers were, at Rolle, whither they had fled on account of Mme. de Staël's approaching confinement. He had run away from his victorious army in consequence of a decree against him by the Convention; and orders having been given to secure him, alive or dead, he fled through Switzerland into Germany, intending possibly by a circuitous route, to reach shelter in England. He was succeeded by Kellermann, and the fears of the Swiss returned. A few days, however, restored peace and security to the minds of all at Lausanne. Savoy was erected into the Département du Mont-Blanc; Geneva was revolutionised and summoned a Convention to meet. The wealthier inhabitants retired to the Pays de Vaud, where all apprehensions of attack or of insurrection had subsided at the beginning of 1793.

In these circumstances Gibbon's promised visit to Lord Sheffield would have been in all probability still postponed, but for an unfortunate event in his friend's family —his wife's death—and his writing to require consolation and support under this loss. Gibbon behaved most admirably on the occasion, for he lost no time in setting out upon a long, very inconvenient, and somewhat perilous journey round the French frontier, though in a state of body little fit for undergoing such fatigue. He had some

years before suffered from erysipelas, which had left a swelling in the legs. He had been visited with a severe fit of the gout in 1791, and again the following year; but his chief infirmity was a very unwieldy rupture, which all who saw him perceived, but which he himself most unaccountably never supposed any one could be aware of, and never had mentioned in the slightest way either to any medical man or even to his valet-de-chambre. The death of his friend Severy, after a long illness, had likewise indisposed him to any exertion. Yet with all these difficulties to struggle against, he manfully set out about the month of May, and, after a tedious and circuitous journey by Frankfort and Brussels, reached Ostend at the end of that month, and Sheffield House in London a few days after. There, and at Sheffield Place in Sussex, he remained during the summer, excepting only a visit to Mrs. Gibbon at Bath, and one to Lord Spencer at Althorp in October.

He came to London early in November. He now found it necessary to consult physicians, and it being ascertained that he had hydrocele as well as hernia, the operation of puncturing was performed. Under this, which is not considered painful, nor if the only complaint, dangerous, he shewed great cheerfulness, making jokes with the operator during the time. No less than four quarts of fluid were taken off, and as he had no fever he was able to go out in a few days, though the tumour continued of about half its former size, owing to the other malady. The water immediately began to form again; a second operation was necessary—it was performed Nov. 24, and it proved much more painful than the first. His letters continued as gay as usual; and he announced

his intention of going to Sheffield Place in a few days. He visited Lord Auckland in Kent; he returned to dine with the Chancellor, (Lord Loughborough,) and met there Mr. Pitt, with Burke and Windham; and before the middle of December he reached Lord Sheffield's. While there he was observed to be exceedingly changed, though in London, a few days before, his conversation had been as lively and animated as ever. He moved about with difficulty; he often retired to his room; the formation of water again showed itself; his appetite began to fail; and he observed, it was a bad sign with him when he could not eat at breakfast—the only desponding expression that escaped him. Fever now made its appearance, and Lord Sheffield recommended his removal to London, where he went by a very painful journey on the 6th of January. Two days after, Lord Sheffield joined him, and a third operation relieved him of six quarts. His spirits were revived by this relief, and when his friend left town, he reckoned upon being able to go out in a day or two; but on the 15th he was taken violently ill in the night, and he died the following day, 16th January, 1794. Two days before, he had received the visit of Lady Spencer and her mother Lady Lucan; and on the next day he rose and saw several friends, with whom conversing as late as five in the evening, the talk fell on a favourite topic with him, the probable duration of his life, which he fixed at ten years at least, perhaps twelve, and perhaps twenty. In less than two hours he became drowsy, passed an exceedingly bad night, and though in the morning he found himself better and got up, he was persuaded to retire again into his bed, in which he expired before one o'clock. His servant said, that he never at any time

appeared to have supposed himself in danger, unless his desiring to see Mr. Darell, his solicitor, might be considered to indicate some such feeling. He was buried in Lord Sheffield's vault at Hitching, in Sussex, and an epitaph in Latin was inscribed on his tomb, the composition of Dr. Parr, and describing his style with more discrimination than is to be found in many of that experienced lapidary writer's compositions. "Copiosum, splendidum, concinnum orbe verborum, et summo artificio distinctum orationis genus, reconditæ exquisitæque sententiæ."

It remains before considering the historical merits of Gibbon, that some account be given of his personal qualities, beyond that which has incidentally been drawn from the opinions of Suard and Deffand. His honourable and amiable disposition, his kind and even temper was praised by all, displayed as it was in the steadiness of his friendships, and the generosity of his conduct towards Deyverdun, and indeed all who needed whatever help his circumstances enabled him to give. Perhaps the warmth of his affection was yet more strikingly exemplified in his steady attachment to his kind aunt, Miss Porten, and towards his venerable stepmother, who survived him. Nor can any just exception be taken to his political conduct when in Parliament, the personal friend as he was of Lord North, and the conscientious approver of his measures. If he joined in the Coalition which made shipwreck of all the parties to it, he only erred with far greater politicians, and might well plead his habitual respect and esteem for his leader as the justification of joining in his fatal mistake.

He never was more than a silent spectator of those great and fierce struggles. He appears early to have felt that his talents were not adapted to public speaking, an error which many able and even highly gifted men fall into from not being aware how much the faculty of thinking on his legs, is an acquisition of habit to any man of tolerable abilities, who will devote himself to gain a faculty, beyond most others, bearing a premium disproportioned to its real merits in every free country. He repeatedly endeavoured to overcome his repugnance, and to risk the consequences of a failure, which after all would only have continued the silence he condemned himself to. As often as he came near the point, he shrank back, saying, it "was more tremendous than he had imagined—the great speakers filled him with despair, the bad ones with terror." Afterwards, on again coming near the task, he recoils, as he says, not for want of preparation and of matter, but "from dread of exposing himself." This personal vanity, then, finally condemned him to silence—or as he says, "he remained in his seat safe but inglorious." He would not take the chance of success which would have greatly exalted him, for fear by failing he should remain where he was. He refused to take a gratis ticket in the political lottery, where he might have gained by the adventure, and could not possibly lose, unless, indeed, his vanity might have been mortified for nine days by men citing his failure.

His colloquial powers were by all accounts of a high order, but certainly not of the highest; for he was careful of his expressions to the pitch of pedantry; his remarks came as if prepared for the press; his wit was

equally precise, and his manner was strongly tinged with affectation. Great resources of information, and as much readiness of argument, and remark, and sally, as his conceit would allow to appear, ministered to the staple of his talk. Sir James Mackintosh, in reference to Gibbon's powers of conversation was wont to say, that he might have been cut out of a corner of Burke's mind, without being missed. I say in reference to his powers of conversation; though Mr. Green who relates the anecdote, considers the application of the remark as having been general. But Sir James far better knew the merit of Gibbon, and the value of his great work, than thus to compare him generally with Burke—whose whole writings, excellent as they are for some qualities, will never stand nearly so high in the estimation of mankind, either for profound learning or for various usefulness, as the 'Decline and Fall.'

His letters have the faults of his conversation; they are not easy or natural; all is constrained, all for effect. No one can suppose in reading them that a word would have been changed, had the writer known they were to be published the morning after he dispatched them, and had sent them to the printing-office instead of the post-office.

The external appearance of Gibbon was extremely ungraceful and forbidding. In his early years his figure was very small and slender, but his head disproportionately large. In after life his whole form was changed, and his large head and barely human features, seemed better adapted to the bulk into which his body had swelled. By far the best picture of him and of his conversation is given by Colman, whom Mr. Croker copies in a note to

his invaluable Edition of Boswell's Johnson, (vol. i. p. 121.) "The learned Gibbon was a curious counterbalance to the learned, (may I not say the *less* learned?*) Johnson. Their manners and tastes both in writing and in conversation were as different as their habiliments. On the day I first sat down with Johnson, in his rusty brown suit, and his black worsted stockings, Gibbon was placed opposite to me in a suit of flowered velvet, with a bag and sword. Each had his measured phraseology; and Johnson's famous parallel between Dryden and Pope might be loosely parodied in reference to himself and Gibbon. Johnson's style was grand, and Gibbon's elegant; the stateliness of the former was sometimes pedantic, and the polish of the latter was sometimes finical. Johnson marched to kettledrums and trumpets, Gibbon moved to flutes and hautboys; Johnson hewed passages through the Alps, while Gibbon levelled walks through parks and gardens. Mauled as I had been by Johnson, Gibbon poured balm upon my bruises, by condescending once or twice in the course of the evening to talk with me. The great historian was light and playful, suiting his matter to the capacity of the boy; but it was done *more suo;* still his manner prevailed, still he tapped his snuff-box, still he smiled and smiled, and rounded his periods with the same air of good breeding as if he were conversing with men. His mouth, mellifluous as Plato's, was a round hole nearly in the centre of his visage."

We are now in the last place to consider Gibbon as an historian, and in considering the nature and estimating

* It really is singular to see any kind of doubt expressed on this by any one who had ever heard either author.

the merits of his great work, the first thing that naturally requires our attention is the plan. In the subject, as he has defined or rather extended it, there is manifestly a remarkable defect. There is no correctness in representing the decline of the Roman Empire as having lasted from the age immediately following that of the Antonines, at the end of the second century, to the taking of Constantinople by the Turks in the middle of the fifteenth—a period of nearly thirteen hundred years. It is true that the seat of power had been transferred from Italy to the confines of Asia; but in order to make the Roman Empire survive for six centuries and a half the destruction of the Western Empire, it becomes necessary to regard, and the author does accordingly regard, Charlemagne as having formed a new empire in the west, and his successors, first of the Carlovingian race and then of the Capetian, as governing the Roman Empire. Indeed, the unity of the subject, and its clear limitation, would have been more perfectly maintained by making the History terminate with the subversion of the Western Empire by the conquest of Rome in the beginning of the sixth century. The subject, as it has been continued far beyond the original design, is, therefore, wanting in unity; it is not so much the decline and fall of the Roman Empire as the history of the whole world for the first fourteen or fifteen centuries of the Christian era.

In order to keep some order and arrangement in a subject so vast and various, it becomes necessary either to follow strictly the order of time in relating successive events—or to group those events, and chiefly by the countries which were the scenes of them—or to adopt a middle course and to treat chronologically the events of

each group. Gibbon has, generally speaking, taken this third line, and has pursued it with much skill and felicity. But he has also adopted occasionally other principles of distribution, and has collected all the events relating to some important subject, as the rise or downfall of a religious sect, and has given these events as the general history of that subject. To this course, however, there are exceptions. It was not judicious to separate from the general history of Constantine an event so important in its influence, both on his own fortunes and on the condition of his empire, as his conversion to Christianity, making it instead of Paganism the established religion of the Roman world. One consequence, among others, of this separation is, that the historical reader can hardly recognise Constantine's identity or that of his most famous victory, "the battle of the standard,*" by which he took Rome and established his fortune. Another consequence is, that had the History ended with the first publication, comprising the first sixteen chapters, the reader would have been left wholly ignorant of the most important part of Constantine's reign, although the narrative had extended over two-thirds of that reign, and incomparably the most material as well as the largest portion of it. It is a third consequence that his religious history, being reserved for a separate narrative, is blended with the establishment of the Christian religion, which was only fully effected during the century after his decease; and thus the general narrative breaks off in the middle of

* There is no mention whatever even of the word *Labarum* in the first publication. It occurs not under the head of the battle, but in the 20th chapter, which gives the religious history of the empire.

Julian's reign and of the fourth century: then the ecclesiastical history goes back to the beginning of that century and continues to the middle of the fifth; and lastly the general narrative, thus interrupted, is again taken up where it left off in Julian's reign. Thus, too, the history of Mahomet and his immediate successors is given apart from that of their conquests. The reigns of the six caliphs who conquered Persia, Syria, Egypt, and part of Africa, are all given, though shortly; and no one, to read the chapter containing that history (the fiftieth), would ever suspect that any of them, not even Omar and Ali and Othman, had ever drawn a sword, though the rise of their religion had been related, and even its peculiar doctrines described, and though that history covered a period of half a century (632 to 680). Hence anticipation and repetition, or the choice between these and obscurity, becomes unavoidable. Other defects of a like description may be found out in the design; but it must on all hands be admitted, that the extraordinary nature of the subject, its many scattered parts, its consisting of so much possessing no interest, and yet not easy to omit, with so much which, though interesting, is of most difficult arrangement and compression, interposed obstacles all but insuperable to the composition of a work having any pretensions to either unity or method, and the historian has been always most justly praised for having approached as near as could reasonably be expected to a perfection of impossible attainment.

The great merit of Gibbon is his extraordinary industry, and the general fidelity of his statements, as attested by the constant references which he makes to his numerous and varied authorities—references which

enabled the "most faithful of historians"* to ascertain clearly their accuracy, that is, the truth of his narrative. This is the very first virtue of the historical character; and that merit, therefore, is fully possessed by Gibbon. In it he is the worthy rival of Robertson, and in it he forms a remarkable contrast to Hume.

The next great merit of Gibbon is the judgment with which he weighs conflicting authorities, and the freedom with which he rejects improbable relations. His sagacity is remarkable; and his attention seems ever awake. When we consider the obscurity in which many events during the dark ages are necessarily shrouded, nay, even the multitude of obscure actors on the turbulent and varied scenes—persons whom he yet was not at liberty to pass over—this praise, so generally accorded to him, becomes the more flattering, in proportion as the task was the more difficult of following scanty and uncertain lights, and describing strange but oftentimes mean transactions. His most distinguished translator and commentator, after, at one time, doubting his general accuracy and powers of discrimination, has confessed, upon a more careful perusal, with a constant reference to his authorities, that he had judged him too severely, and has done ample justice, as well to "his power of judicious discrimination" (*justesse d'esprit*) "as to the immensity of his researches and the variety of his knowledge."†

The third excellence of the work is its varied learning, distributed in the vast body of notes which accompany

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* Robertson. See his letter on the publication of the first volume. That great writer had diligently traced the author's references.

† Guizot. Preface.

the text, and which contain no small portion of a critical abstract, serving for a *catalogue raisonné*, of the works referred to in the page. Though many of these notes are somewhat flippant, and some are far from decent, they form, perhaps, the most striking, certainly the most entertaining part of the work.

It must, lastly, be allowed, that the narrative is as lucid as the confused nature of the subject will admit; and that, whatever defects may be ascribed to it, there is nothing tiring or monotonous, nothing to prevent the reader's attention from being kept ever awake. When the nature of the subject is considered, perhaps there may some doubt arise, if the chaster style of Livy, of Robertson, or even of Hume, could have rendered this story as attractive as Gibbon's manner, singularly free from all approach to monotony, though often deviating widely from simplicity and nature.

These are, truly, excellences of a high, some of them excellences of the highest, order, and all possessed by Gibbon in an ample measure—patient industry, general fidelity, sagacious discrimination, jealous vigilance in detecting error and falsehood, various, profound, and accurate learning, all combined to produce a history, which with eminent clearness unravels a perplexed and obscure subject but one of extreme importance, and which gives in a connected view the transition from former ages to our own, uniting, as has been happily observed,* by a kind of bridge the story of the ancient and the modern world. It would be difficult for more of the virtues of a great historian to unite in the same person.

* Milman's Preface.

But great vices also fell to his share. Has tantas viri virtutes ingentia vitia æquabant. (Liv. xxi. ch. 4.) He never attained, with all his practice, the first quality of the historical style, and which goes deeper than the mere manner, the power of narrative. The story does not flow smoothly along; its course is interrupted; it wants unity, being broken down into fragments. It is almost as much argumentative as narrative. But above all it fails in the very first quality of narrative; it does not assume the ignorance of the reader and relate things in their order, proceeding from what has been told or explained to what remains undisclosed. Now this is the most essential quality of all didactic compositions, and for the present purpose every work is didactic. Whether a science is to be unfolded, or an argument to be enforced, or a story to be told, nothing should be anticipated, nothing assumed to be known before it has been propounded. Now Gibbon constantly seems to assume that his reader knows the subject, and continually alludes to what has yet to be brought before him. It is a part of this defect, indeed it is the main cause of this defect, that he is generally observing upon matters rather than plainly recounting them. Numberless instances might be given of these anticipations and assumptions; not a few of his leaving out the facts and losing himself in the remarks. One or two may suffice rather as explaining than as proving those positions, to which all Gibbon's readers must assent.—There is nothing more elaborate than his history of Alexander Severus; yet two references are made to his death, and one of them is made the subject of a general inference, at a considerable distance from the account of his murder, afterwards given (chap. VII.);

a long digression on the finances of the empire, as well as a history of Maximin, being interposed between these allusions and the narrative of the death.—A great and just panegyric is delivered of Papinian, the greatest lawyer and statesman of his age, and prime minister of the Emperor Caracalla.* His death is said to have caused general sorrow; but we are never told that he died, or how, and can only conjecture as most likely that the tyrant put him to death for nobly refusing to follow Seneca's example and defend parricide. (Chap. VI.)—So too in the same chapter, a minuter account with some statements, and especially some notes that might have been spared, is given of the monster Elagabalus. We are told that he sent his portrait to Rome before he marched thither in person. But the important event of his going there is altogether left out, and we only know it by being afterwards told of his conduct in the capital.—Speaking of the war of Honain, he mentions the confederacy of Tayef as a thing already described and known to the reader, yet it never had even been alluded to. (Chap. L.)

All this proceeds from the false notion which Gibbon seems to have formed of a dignified style. He will not condescend to be plain: he forgets that the very business of the historian is to relate the history of events as they happened. He must always shine; but labouring for effect, he wholly omits the obvious consideration that relief is absolutely necessary to produce it; and forgets that a strong unbroken light may dazzle without pleasing, or may shine rather than illuminate, and that a broad

* So Gibbon makes him. He appears, however, to have been dismissed from his office of *Præfectus Pretorio* some time before.

glare may be as confused and uninteresting as darkness itself. The main fault of his style is the perpetual effort which it discloses. Hume may have concealed his art better than Robertson, yet the latter is ever at his entire ease, while Gibbon is ever in the attitudes of the Academy; he is almost agonistic. He can tell nothing in plain terms, unadorned with figure, unseasoned with epigram and point. Much tinsel is the result; many a puerile ornament; many a gaudy allusion. But the worst consequence of the erroneous theory, after the fatal effect of spoiling the narrative and making the story be told by allusion and hint rather than historically, is that it leads to no small obscurity in the diction. This great historian furnishes an example of the style so much in favour with some inferior writers of a later date, the ænigmatical. Forgetting that the use of language is to disclose our thoughts, they seem rather to adopt the politic cardinal's notion that speech was given us to conceal them, and accordingly they seem at the end of each fine sentence as if they cried in a tone of defiance, "Find me out the meaning of that!" Of course the proverbial servility of imitators has since gone very far beyond the earlier examples in Tacitus, Montesquieu, and Gibbon. Yet the latter has innumerable passages at which we guess long ere we can be sure of their sense. Another consequence of the determination to pursue the same stately march on all occasions is, that the most common things being wrapt up in the same dignified or adorned language, the matter, beside eluding for some time our apprehension, forms a contrast so ludicrous with the manner, that somewhat of ridicule is produced when the sense is well ascertained.

To exemplify these remarks, which must have presented themselves to all readers, there needs only the opening of the book at almost any page.—He has to state that instead of following the political divisions of the Turkish Empire, he means to be guided by natural boundaries; but this is too plain: "Instead of following the arbitrary divisions of despotism and ignorance,* it will be safer as well as more agreeable to observe the indelible characters of nature." Then comes, instead of a simple geographical description of boundaries, a very violent figure representing the countries as in motion or as gushing out. "The name of Asia Minor† is attributed with some propriety to the peninsula which, confined betwixt the Euxine and the Mediterranean, advances from the Euphrates towards Europe," (ch. I.)—When he has simply to say, that Sardinia and Sicily form two kingdoms in Italy, it is, "Two Italian sovereigns assume a regal title from Sardinia and Sicily," (ch. I.)—When he has to mention the simple fact that there were three great lawyers of the name of Scævola, it is "The kindred appellation of Mucius Scævola, was illustrated by three sages of the law," (ch. XLIV.)—Who without much thought can descry that the following sentence means to state the circumstance of the Western Ocean being called the Atlantic? "The western parts of Africa are intersected by the branches of Mount Atlas, a *name* so idly *celebrated* by the fancy of poets, but which is now diffused over the immense ocean that rolls between the ancient and the new continent," (ch. IV.)—So inveterate had this habit of writing become, that when relating the ordinary events of his own life, or describing the

* This is not an intelligible word here. † Why not "given?"

circumstances of his family, we find him equally moving upon stilts as when recounting the fortunes of the Western or the Eastern Empire. He is telling that the Gibbons had been city traders; and he says that in their days, "before our army and navy, our civil establishment, and India empire had opened so many paths of fortune, the mercantile profession was more frequently chosen by youths of a liberal race and education who aspired to create their own independence. Our most respectable families have not disdained the counting-house, or even the shop; and in England as well as in the Italian commonwealths, heralds have been compelled to declare that gentility is not degraded by the exercise of trade." (Life, *sub in.*)

Such a style is prone to adopt false and mixed metaphors, and falls naturally into obscurity. The great original of it, Tacitus, is a constant example of the latter vice; but Gibbon added a defect not to be found in his model, or in the other object of his admiration, Montesquieu: he is very often incorrect, sometimes from desire of making the sense of words bend to the balance of a period, or the turn of an epigram, sometimes from mere carelessness or neglect.—"They addressed the Pontiff to dispel their scruples, and absolve their promises," (ch. XLIX.) Dispel is not the correct word applied to scruples, but to doubts; and absolving a promise is wholly senseless; but "absolve them from a promise," is plainly rejected because it would have interrupted the symmetry, which some would call the jingle.—So he makes the Emperor (ch. XVI.) not pity, but "abhor the sufferings of the persecuted sect," instead of the cruelty of the persecutors.—From the same motive, speaking of Maximin's

cruelty and superstition, he makes "the former suggest the means, the latter point out the objects of persecution:" (ch. XVI.) now cruelty can never suggest means, it can only induce the adoption of them, and superstition might just as well suggest means as objects.—Again, speaking of the numbers of the empire and its public works, he says, "The observation of the number and greatness of its cities will serve to confirm the former, and to multiply the latter," (ch. II.): as if any observation of works could increase their number; but then the accurate phrase "to extend our belief in the number of the latter," would have spoilt the symmetry and sound of the period.

The historian's language, however, abounds in phrases indolently adopted without any regard to the real meaning of words, and not to serve any purpose of preserving symmetry or obtaining point.—Thus "human industry corrected the deficiencies of nature," (ch. II.) instead of supplied.—So "the life of the founder *supplies* the silence of his written revelation;" (ch. L.) instead of supplies the deficiencies, or speaks when the writings are silent.—"Genius and learning served to *harmonize* the soul of Longinus," (ch. XII.)—"Two circumstances have been universally mentioned, which *insinuate* that the treatment," &c., (ch. XVI.)—Again, "History, which undertakes to record the transactions of the past, for the instruction of future ages, would ill *deserve* that honourable office, if," &c., (ch. XVI.) instead of "execute" or "perform."—"Fraud is the resource of weakness." No one doubts it; but he adds, "and cunning,"—which is, in fact, either fraud or the immediate cause of it; and no one can correctly say that fraud is its resource, (ch. XLIX.)

Sometimes, in quest of a fine word, he says something

which he does not mean.—"If we *annihilate* the interval of time and space between Augustus and Charles IV.;" (ch. L.) but he only means, "if we pass over that interval." —"A casting vote was *ascribed* to the superior wisdom of Papinian;" (ch. XLIV.) but he only means, that it was given to Papinian on account of his "wisdom," while he says that Papinian's wisdom was understood to have invented the casting vote.—"The fragments of the Greek kingdom in Europe and Asia I shall *abandon* to the Turkish arms;" (ch. LXVIII.) but he only means, that he gives up the history of the empire after those arms had conquered it. A greater artist marks his course, and connects himself with his subject after a very different fashion:—"Me quoque juvat," says Livy, on closing the Punic wars, "velut ipse in parte laboris ac periculi fuerim, ad finem belli Punici pervenisse. Nam, etsi profiteri ausum perscripturum res omnes Romanas, in partibus singulis tanti operis fatigari minime conveniat, tamen quum in mentem venit tres et sexaginta annos æque multa volumina occupasse mihi quam occuparint quadringenti octoginta octo anni a conditâ Urbe ad Ap. Claudium Consulem qui primus bellum Carthaginiensibus intulit; jam provideo animo, velut qui proximis littori vadis inducti mare pedibus ingrediuntur, quidquid progredior in vastiorem me altitudinem ac velut profundum invehi et crescere pæne opus quod prima quæque perficiendo minui videbatur." (Lib. xxxi., cap. 1.)

There are few instances in his statements of the same carelessness which we have marked in his style; but some there are,—as when he makes the number of Roman citizens at the beginning of the Social War, 463,000 fighting men, which answers to a population of

at least two, perhaps of nearer four millions. (ch. II.) It is, however, rather strange, that one so accustomed to weigh historical evidence, so little apt to be seduced by mere authority, and so prone to set the probabilities of any narrative against the weight of its author, should always have shut his eyes to the gross improbability of the commonly received history of Rome in the earlier ages, and should have followed blindfold the guidance of what any Latin writer, from national vanity, or prejudice, or superstition, happened to relate. We may remember having seen him pluming himself on defending the authenticity of those poetical fictions as pure history in his juvenile work. The same implicit faith in their authenticity followed him to the end of his career, although Beaufort's excellent work had long claimed the regard, and indeed obtained the assent of inquiring minds; and the subsequently promulgated doctrines of Niebuhr and Wachsmüth had been very fully anticipated before any part of the 'Decline and Fall' was written.

The greatest charge against Gibbon's historical character remains: he wrote under the influence of a deeply rooted prejudice, and a prejudice upon the most important of all subjects—the religion of his age and nation. I speak not of the too famous description in which the progress of Christianity is ascribed to second causes, that no doubt operated most powerfully to its general acceptance and dissemination. The most orthodox believer might subscribe to his theory, nay, might have taken the self-same view of the subject. There is great truth, too, in his remarks upon the exaggerated accounts of early persecution, and some foundation for the circumstances urged in extenuation of the conduct held by heathen

authorities towards the new sect. But there runs a vein of sneering and unfair insinuation always against Christians and their faith through the whole both of those inquiries and other portions of ecclesiastical history, especially the religious transactions of Constantine, nay, through almost every part of the work in which any opportunity is afforded by the subject, or can be made often by pretty forcible means—any opportunity of gratifying a disposition eminently uncharitable, wholly unfair, and tinged with prejudices quite unworthy of a philosopher, and altogether alien to the character of an historian. Nor is the charge lessened, but rather aggravated, by the pretence constantly kept up of his being a believer, when any reader of the most ordinary sagacity at once discovers that he is an unrelenting enemy of the Christian name. Nothing can be more discreditable to the individual, nothing, above all, more unworthy the historian, than this subterfuge, resorted to for the purpose of escaping popular odium. All men of right feelings must allow that they would far more have respected an open adversary, who comes forward to the assault with a manly avowal of his disbelief, than they can a concealed but bitter enemy who assumes the garb of an ally, in order effectually to screen himself and injure the cause he pretends to defend.

To give instances of the unfairness which I have, in common with all Gibbon's readers, reproved, would be too easy not to prove superfluous. But the sixteenth chapter must for ever be, in an especial manner, a monument of his gross injustice or incurable prejudice. The eagerness with which he seizes on every circumstance to extenuate the dreadful persecutions that admit of no defence, is in

the highest degree discreditable, both to his honesty and his sound judgment. He purposely begins with Nero, and so leaves out the persecutions recorded in Scripture. His account of Cyprian's martyrdom is as unfair as it could be without deceit and positive falsehood—casting a veil over all the most horrible atrocities practised on that amiable and innocent personage, and magnifying into acts of clemency exercised towards him every insignificant attention that was paid him—perverting, too, the truth of history, in order to feign circumstances which really do not appear vouched by any kind of authority. But nothing can be more preposterous than the elaborate description which he gives of the comforts derived by the sufferers in these cruel scenes from the glory of martyrdom, and from the great preference which they must have given it over the disgrace of apostasy. The twofold object of this strange discourse is at once to lower the sufferer's merit and extenuate his oppressor's guilt. Nor is there any kind of persecution for conscience' sake to which the same remarks are not equally applicable. It is a much lesser offence, though the passage is not undeserving of notice, as exhibiting the force of his prejudices, and the errors into which they lead him while descanting on his favourite topic, the "mild spirit of polytheism," that when, in describing Diocletian's general persecution, he has occasion to mention a Christian who had torn down the imperial proclamation, accompanying the act with expressions of "hatred and contempt towards all such tyrannical governors," the historian shows at once his prejudice against Christianity and his ignorance of law, by declaring this offence to be punishable "as treason by the mildest laws." He adds, that

his being a person of rank aggravated the guilt; and relates, without a single expression of disapproval, that the man "was burnt, or rather roasted by a slow fire, every refinement of cruelty being exhausted without altering the steady smile which remained on his countenance." The only remark made on the executioners is of an extenuating nature; they were, it seems, "zealous to revenge the personal insult which had been offered to the Emperor." The smile of the patient sufferer is termed "a steady and insulting smile;" and the Christians are sneered at for "the excessive commendations which they lavished on the memory of their hero and martyr." Gibbon's clerical adversaries would have fared much better in their conflict with him had they dwelt rather upon such passages as these, in which he stands self-convicted either of almost incurable prejudice or of bad faith, and not attempted the hopeless act of charging him with ignorance and with false quotation.

The charge of indecency has often been advanced against Gibbon's 'History,' and by none more severely than by a writer who was combating on his side, in one, at least, of his theological controversies, and a writer whose own verses, any more than his familiar conversation, gave him but little right to make this complaint. Porson* declares that, "Were the 'History' anonymous, he should guess that the shameful obscenities which pervade the whole, but especially the last volumes, were written by some debauchee, who, having, from age or excess, survived the practices of lust, still indulged himself in the luxury of speculation, or exposed the impotent imbecility

* 'Letters to Archdeacon Travis.' Preface.

after he had lost the vigour of passion." This censure is certainly much too sharp, and it is truly astonishing that Gibbon felt it not. Delighted with Porson's alliance against Travis, and pleased with the panegyric of his own diligence and accuracy which the great Grecian had penned, he only says that "the sweetness of his praise is tempered by a reasonable mixture of acid." He also defends himself against the charge of indecency as preferred by others, and his principal argument is the exceedingly feeble, and even doubtful one, that his English text is chaste, and that "all licentious passages are left in the obscurity of a learned language." It is undeniable, however, that, after allowing Porson's invective to be exaggerated, there can be no excuse for some of the notes —as those on Elagabalus, and Mahomet, and Theodora, which throw little, if any, light upon the subject, and only serve to pander for a prurient imagination.

SIR JOSEPH BANKS.

It is rare to observe a name among the active and successful promoters of science, and which yet cannot easily find a place in its annals from the circumstance of its not being inscribed on any work, or connected with any remarkable discovery. Almost all the philosophers of both ancient and modern times have left us writings in which their doctrines were delivered, and the steps made by their labours were recorded. The illustrious exception of Socrates almost ceases to be one, from the memory of his opinions being preserved by two of his disciples in their immortal works; and the important discoveries of Archimedes and of Pythagoras are known distinctly enough in the books of ancient geometry, to leave no doubt resting upon their claims to the admiration and the gratitude of all ages. The lost works of the ancient geometers evidently afford no exception to the general remark, since they once existed, and contained the discoveries of their authors.

It must, however, be observed, that the circumstance of a cultivator of science having left no works to after ages is merely accidental. He may have enriched philosophy with his achievements, and yet never have recorded them himself. Thus, had Black only made the great discovery of latent heat and specific heat, he would have been justly considered in all times as one of the greatest benefactors of natural science, and yet the history of that

splendid discovery would only have been found in the memory of those who had heard his lectures; his only work being confined to the other discovery of fixed air, and the nature of the alkaline earths. To take a yet more remarkable instance;—how little of Watt's great and lasting fame depends on any written work which he has left! The like may be truly said of Arkwright; nay, the most important of inventions, the art of printing, is disputed by two names, Coster and Guttenberg, neither of whom is connected with the composition of any literary work whatever.

As men who have by their researches advanced the bounds of science,—"inventas aut qui vitam excoluerunt per artes,"—may never have given any written works to the world, and yet merit a high place among the greatest philosophers, so may others who have filled the less exalted but highly useful sphere of furthering the progress of the sciences or the arts, deserve a distinguished place among philosophers for the same reason which entitles authors to such a station, although they may never have contributed by any discoveries to the advancement of the sciences which they cultivated. The excellent and eminent individual whose life we are about to contemplate falls within this description; for although his active exertions for upwards of half a century left traces most deeply marked in the history of the natural sciences, and though his whole life was given up to their pursuit, it so happened, that with the exception of one or two tracts upon agricultural and horticultural questions, he never gave any work of his own composition to the world, nor left behind him anything, beyond his extensive correspondence with other

cultivators of science. It is from this circumstance that not even an attempt has ever as yet been made to write the history of Sir Joseph Banks. And yet, what so worthy of contemplation as the history of one who loved science for its own sake, who delighted in the survey of important facts connected with the study of nature, or tracing interesting truths belonging to the same branch of knowledge; whose pursuit of knowledge was wholly disinterested, not even stimulated by the hope of fame as the reward of his labours? And who better deserved the name of a philosopher, than he whose life was devoted to the love of wisdom, whose rich reward was the delight of the study, whose more noble ambition left to others the gratification of recording their progress in books, and filling the mouths of men with their names? Much of what is explained, touching the real pleasures of science, in the life of D'Alembert, is applicable to the career of Sir Joseph Banks.*

He was of an ancient and wealthy family, established since the reign of Edward III., first in the West Riding of Yorkshire, and afterwards in the county of Lincoln, where they possessed ample estates from the end of the seventeenth century; and a considerable accession of fortune came to them early in the eighteenth, by marriage with an heiress in Derbyshire, named Hodgkinson, whose estates, by a shifting use in a settlement, were severed from those in Lincolnshire till 1792, when the whole fortune united in the person of Sir Joseph.

He was born at Argyle Buildings, in London, on the 2d of February, 1743, O. S., according to a note in his own handwriting which lies before me, contrary to several

* See Life of D'Alembert, and Appendix.

accounts which represent him as born in Lincolnshire in December of that year.* After being placed for some time under a private tutor, he was in his ninth year sent to Harrow and four years after to Eton, where his good disposition and cheerful temper recommended him to his masters; but they complained of his extreme aversion to study, and inordinate love of active sports. In about twelve months, however, when in his fourteenth year, his tutor found him reading at the hours of play, and the change which had been effected in his habits was described by himself to Sir Everard Home as arising from an accidental circumstance. One day he had been bathing with his fellow Etonians; and on coming out of the water to dress, he found that all but himself had gone away. Having put on his clothes, he walked slowly along a green lane. It was a fine summer's evening; flowers covered the sides of the path. He felt delighted with the natural beauties around him, and exclaimed, "How beautiful! Would it not be far more reasonable to make me learn the nature of these plants than the Greek and Latin I am confined to?" His next reflection was that he must do his duty, obey his father's commands, and reconcile himself to the learning of the school. But this did not hinder him from immediately applying to the study of botany; and having no better instructors he paid some women who were employed in gathering plants—what is called culling simples—for the druggists, for such information as they could give him, the price he gave being sixpence for each thing they told him. Returning home for the holidays, he was inexpressibly

* The parish register of St. James's makes his birth 4th January.

delighted to find in his mother's dressing-room an old torn copy of Gerard's Herbal, having the names and figures of the plants, with which he had formed an imperfect acquaintance, and he carried it with him back to school. There he continued his collection of plants, and he also made one of butterflies and other insects. I have often heard my father say, that being of the same age, they used to associate much together. Both were fond of walking and of swimming, and both were expert in the latter exercise. Banks always distinguished him, and in his old age he never ceased to show me every kindness in his power, in consequence of this old connexion. My father described him as a remarkably fine-looking, strong, and active boy, whom no fatigue could subdue, and no peril daunt; and his whole time out of school was given up to hunting after plants and insects, making a *hortus siccus* of the one, and forming a cabinet of the other. As often as Banks could induce him to quit his task in reading or in verse-making, he would take him on his long rambles; and I suppose it was from this early taste that we had at Brougham so many butterflies, beetles, and other insects, as well as a cabinet of shells and fossils. The interesting anecdote related by Sir E. Home, I never heard my father relate, but he always said that his friend Joe cared mighty little for his book, and could not well understand any one taking to Greek and Latin. The anecdote itself must be perfectly authentic if Sir E. Home heard it from him; for he was scrupulously exact in relating facts, and anything like romance about natural scenery was the thing in the world the most alien from the cast of his mind.

In 1760 he was taken from Eton to be inoculated, and the operation failed: it was repeated, and succeeded;

but so much time was thus lost, that it was thought better he should not return to school; and immediately before he completed his eighteenth year, he was sent to Oxford, and entered a gentleman commoner of Christ Church. His love of natural history now increased with the increased means and greater leisure for gratifying it. Botany, however, continued to be his favourite branch of that science; and he found that unfortunately no lectures were given by Dr. Sibthorp, the botanical professor. In this difficulty, he applied to the learned doctor for leave to engage a lecturer, whose remuneration should be wholly defrayed by his pupils; and it is highly creditable to the professor, and shows his love of the science, in which some of his family afterwards so greatly excelled, that he at once agreed to the proposal. Mr. Banks then finding no one at Oxford capable of undertaking the class, went over to Cambridge, whence he brought back with him Mr. Israel Lyon, a learned botanist, and good astronomer, who was then engaged in teaching these two sciences to private pupils. The friendship of Mr. Banks afterwards obtained for him the appointment of astronomer to Captain Phipps on his Polar voyage. Mr. Lyon gave lectures and lessons to the young men who had joined in this very laudable scheme, and Mr. Banks, as might be expected, profited exceedingly by those instructions. Among true Oxonians, of course, he stood low. He used to tell in after-life, that when he entered any of the rooms where discussions on classical points were going briskly on, they would say, "Here is Banks, but he knows nothing of Greek." He made no reply, but he would say to himself, "I shall very soon beat you all in a kind of knowledge I think infinitely more im-

portant;" and it happened that, soon after he first heard these jokes, as often as the classical men were puzzled on a point of natural history, they said, "We must go to Banks."

In 1761 his father died; and in 1764, on coming of age, he was put in possession of his valuable estates in Lincolnshire, having quitted Oxford the year before. And now it was that the great merit of this distinguished person shone forth. With all the incitements which his age, his figure, and his station naturally presented to leading a life of idleness, varied only by the more vulgar gratifications of sense or of ordinary ambition, and with a fortune which placed these gratifications in ample measure within his reach, he continued steadily devoted to scientific pursuits, and only lived for the studies of the naturalist. He remained out of Parliament; he went little into any society but that of learned men; his relaxation was confined to exercise, and to angling, of which he was so fond, that he would devote days and even nights to it; and as it happened that Lord Sandwich had the same taste, and that both possessed estates in Lincolnshire, they became intimately acquainted, and saw much of one another. So zealous were both these friends in the prosecution of this sport, that Sir Joseph used to tell of a project they had formed for suddenly draining the Serpentine by letting off the water; and he was wont to lament their scheme being discovered the night before it was to have been executed: their hope was to have thrown much light on the state and habits of the fish.

In May, 1766, he was elected a Member of the Royal Society, and the same year he accompanied his friend Sir Thomas Adams in the *Niger*, entrusted with a voyage to Newfoundland. Mr. Banks's object was the

collection of plants: what the object of the particular voyage might be I am not informed. On his return to England by way of Lisbon, early in 1767, he resumed, or rather continued, his studies in botany and natural history; and the intimacy which he formed with Dr. Solander, a favourite pupil of Linnæus, now settled at the British Museum as Assistant-Librarian, greatly facilitated his application to these pursuits.

The commencement of George the Third's reign was distinguished most honourably, both for the Sovereign and for his favourite minister, Lord Bute, by an extraordinary regard for the interests of science. That distinguished person, the victim of much popular prejudice and misrepresentation, formed a rare exception to most statesmen who have governed this country, for he was fond of philosophical studies, and was a successful as well as a diligent cultivator of some of the sciences. Accordingly, the patronage of the Crown was extended to others who had like tastes, and it was most judiciously employed in promoting the discovery of distant regions not before explored by the adventurous spirit of navigators. Captain Wallis had recently brought us acquainted with some of the more remarkable groups of islands which stud one portion of the Pacific Ocean; and it was resolved to promote these discoveries, for the advancement of natural science, without any views of conquest. In 1676 Halley, while residing at the Island of St. Helena, had made an important observation on the transit of Mercury over the sun's disc. But he had bequeathed to astronomers a far more important recommendation, to mark the transit of Venus, an event of much more rare occurrence, and which he could not hope to see, as it

was calculated to happen next in the year 1761. He had shewn how complete a measure that phenomenon would afford of the sun's parallax, or the angle subtended by the earth's radius at the surface of the sun. This angle could be with great accuracy best ascertained by different contemporaneous observations at distant points of the arc which the planet described in its passage,—the planet affording, as it were, an object between the sun and the earth, a kind of signal-post, by means of which the angle sought might be measured.

Accordingly, in 1761 the British Government sent one observer, Mr. Mason, to the Cape, and another, Dr. Maskelyne, to St. Helena. The French Government at the same time sent Le Gentil to Pondicherry, in the East Indies, and La Chappe to Tobolsk, in Siberia, and Pingre to Rodrigues, near the Mauritius. But the weather proved so unfavourable that no certain conclusion could be derived from their observations; for though Pingre and Mason's observations proved afterwards to be correct, they differed so widely from the others that the whole subject remained in great uncertainty. A second transit was expected in 1769, and the British Government now sent an astronomer (Mr. Green) again to make those important observations.

The great value of the object in view is manifest. If we can ascertain the parallax, we have, by an easy process, the exact distance of the sun from the earth; for, as in every triangle the sides are as the sines of the opposite angles, the distance of the sun must be to the earth's radius as the sine of an angle not sensibly differing from a right angle, that is, as unity to the sine of the parallax. Hence the distance is equal to the radius of

the earth divided by the sine of that very small angle. The distances from the sun of the other planets are easily found, because we know their relative distances; and the real diameters of the sun and of these bodies are likewise deducible from the same angles. The whole structure of the planetary or solar system thus depended upon ascertaining the angle of parallax; and nothing, therefore, could be more becoming the rulers of two such kingdoms as France and England, than to promote by every means the success of these observations. While one expedition was sent to the Pacific, Otaheite being the place chosen for the experiment, Messrs. Dymond and Wales repaired to Hudson's Bay, Mr. Call to Madras, and the Abbé de la Chappe was sent to California. The Danish Government sent Father Hills to Wardhus, near the North Cape; the King of Sweden dispatched Plausow to Finland; and the Empress of Russia sent several observers to different parts of Siberia, with the same views. Four of the observers—those at Otaheite, California, Hudson's Bay, and Wardhus—were completely successful. The expedition to the Pacific had for its principal, but not its only object, the observation by Mr. Green of the transit. Everything that regarded the natural history of the island fell within its scope; and the accurate survey of the coasts already known, as well as the exploring of new lands, was an important part of the wise and enlightened scheme.

As soon as Mr. Banks found that the voyage to the South Seas was resolved upon, he applied to his friend Lord Sandwich, then at the head of the Admiralty, for leave to join the expedition with a suite of scientific men, and this was immediately granted. He made his prepa-

rations on the most liberal and extensive scale, worthy of his fortune and his zeal for the advancement of natural knowledge. He took with him Dr. Solander, the distinguished botanist already mentioned. He likewise took two draftsmen and four servants; and, as the expedition was placed under the government of the naval service, all who joined it became subject to its rules and its discipline.

The choice of Captain Cook, as commander, was singularly fortunate, or rather it was perfectly judicious. He had risen gradually from the humble station of an apprentice in a collier of Whitby, till he became mate of a vessel engaged in that trade, fitted beyond all others to make excellent navigators, because it is carried on by sailing upon a coast almost without any harbour of refuge; and consequently exposes the mariner to constant risks and exercises his unremitting vigilance. When the war of 1756 broke out, (the Seven Years' War,) he had volunteered into the navy, and showed such talents in his profession, that the Admiralty appointed him mate of a sloop, the *Mersey*, in which he was present at the siege of Quebec, under Wolfe. His skill and gallantry in laying down the river and its soundings, previous to the attack, led to his being employed in making a chart of the St. Lawrence as far as the sea. His chart, though he had never been taught either surveying or drawing, was long the only one in use. He was, in consequence, made master of the *Northumberland* frigate, and served in that capacity till 1762, employing, however, his spare time in the study of the mathematics, in which he received most valuable assistance from a person of great science, a pupil of the Bernouillis, Mr. afterwards Major Desbarres; and in 1764, his patron, Sir Hugh Palliser,

whose name has been blackened by the assiduous efforts of political faction, but who for many years was the firm friend and only patron of Cook, being appointed to the Government of Newfoundland, obtained for him the place of marine surveyor of that island and Labrador. He held that place for nearly four years, and enriched hydrographical science by the most valuable charts of those regions. The talents which he had displayed as a navigator were united to every bodily quality that can fit men for either action, or labour, or suffering—an eye sure in estimating directions and distances; a frame of iron; an entire indifference to fatigue, or privations, or the times of wakefulness or of rest. But these natural aptitudes for great actions were even exceeded by his excellent demeanour in every station whether of obedience or of command, by his fertility of resources in all difficult situations, by his calmness in danger, his firmness and presence of mind on every emergency. "Plurimum audaciæ ad pericula capessenda, plurimum consilii inter ipsa pericula erat; nullo labore aut corpus fatigari aut animus vinci poterat. Caloris ac frigoris patientia par; cibi potionisque desiderio naturali, non voluptate, modus finitus, vigiliarum somnique nec die nec nocte discriminata tempora. Id quod gerendis rebus superesset quieti datum." (Liv. xxi. c. 4.)

So accomplished a seaman, or one so admirably fitted for exploring new and unknown regions, guided only by science and relying only on his own resources in all perils and all emergencies, has never perhaps been offered to the choice of a Government desirous of promoting this interesting and difficult branch of the public service. He was accordingly promoted to the rank of Lieutenant

and placed at the head of this expedition. Such was the chief under whom Mr. Banks embarked in this important enterprise; and in admiration of his great qualities he yielded to none of his followers. There was, indeed, something exceedingly congenial in the two characters; the same love of discipline, the same firmness of purpose, the same exclusive devotion to the one object in view, the same strict and even punctilious regard to the performance of his duty, the same active habits, and the same contempt of all save action, distinguished alike these eminent individuals, and knit them together in an indissoluble friendship notwithstanding the somewhat stern temper of the one and the occasionally irascible disposition of the other, and notwithstanding the wide difference of the favourite pursuits to which their several lives had been devoted. There was, moreover, a considerable difference of age; for Banks was only in his twenty-sixth year, while Cook was upwards of forty.

On the 25th of August, 1768, the *Endeavour* sailed from Plymouth Sound; but the jealousy of the Brazil Government preventing them from landing at Rio de Janeiro, the first land at which they touched, (except a few days at Madeira,) was the Terra del Fuego, the southernmost point of the great American continent. Here Mr. Banks and Dr. Solander made extensive botanical collections; but though it was the height of summer in that severe climate, their attempts to ascend the mountains were attended with extreme danger from the severity of the snow storms and the excessive cold. Three of their attendants perished; and Dr. Solander could only be saved from that deep sleep which proves the forerunner of death, by the greater activity and more

powerful constitution of his younger companion, who succeeded himself in casting off the drowsiness by a strong and painful effort, and was enabled also to rescue his friend. I have more than once heard him discourse on the subject: he described the desire of sleep which then stole over his senses as altogether irresistible, and ascribed its force to the effect of the cold in making all other desires with all the faculties torpid. Motion seemed to produce little effect, for the irresistible tendency was at every step to sink down, as if the greatest suffering was to continue alive and awake, the most delightful state to fall asleep and expire; nor, so far as I recollect his account, did any of them, while yielding to this propensity, doubt that it was indulged at the cost of life itself. Dr. Solander's case was peculiarly remarkable. Accustomed to excessive cold in travelling among the Norwegian and Swedish Alps, he had warned his companions of the fate that awaited them should they yield to drowsiness. "Whoever," said he, "sits down, will sleep; whoever sleeps will wake no more." Yet was he soonest overpowered. He insisted on being suffered to lie down. One of the men said, "all he desired was to lay down and die." The Doctor did not quite say so; but he acted on this feeling. He fell asleep before he could reach the fire which Mr. Banks had kindled. When the latter roused him, his feet were found to be so shrunk that his shoes fell off.

On the 26th of January, 1769, they sailed from Cape Horn, and arrived, after a prosperous voyage, at Otaheite, on the 11th of April. The delightful climate, pleasing landscape, and amiable people which here met them, may well be supposed to have enchanted men who for eight long months had seen only the sea and the sky, unless

when they touched on the arid and inhospitable coast of Terra del Fuego. But amid their repose and relaxation, business never was forgotten. They spent the time that elapsed before the Transit in astronomical observations, and in a minute examination of the island. Mr. Banks and his friend became thoroughly acquainted with every branch of its natural history, but he also acquired extraordinary favour and influence with the natives, insomuch that he became the frequent arbiter in their disputes. This ascendant he owed to his frank and manly carriage, his perfect good humour, and his unfailing firmness, to which we must certainly add his noble presence, so well fitted to make an impression upon rude minds. An important service was rendered by him, and he was enabled to render it through the influence which he had thus acquired. When the observatory was established on the 1st of May, and the instruments had been taken on shore the evening before, it was found that the quadrant, contained in a large packing-case, and deposited in a tent guarded by a sentinel, had been carried off. The whole object of the expedition was frustrated should it not be recovered. Every search proved unavailing. At last Mr. Banks went into the woods, and his judicious and spirited exertions proved successful; the precious instrument was restored in perfect safety. In his expedition he was sometimes surrounded by the crowd of impatient and angry natives, and had to show his pistols in order to control them. He went among them with a single attendant only.

The event so anxiously expected, of the Transit, took place at the time prefixed by the calculations,—June 3. As the critical day approached, the general anxiety

increased, and it descended from the astronomer himself to the humblest mariner of the expedition. On the night of the 2nd not an eye was closed. One rose every half hour to report the state of the weather to the rest, who were kept on the alert by the hope which arose when the sky was reported clear, or the fear which the mention of a cloud produced; but next morning, to their unspeakable delight, the sun was seen to rise without a cloud, and the serene clear sky continued during the day. The observations were accordingly among the best of any which the different astronomers made of the phenomenon. The precaution had been taken, judiciously suggested by Lord Moreton, of making the observation at more places than one; and Mr. Banks accompanied the party which was despatched for that purpose to the Island of Eimeo. An officer was sent to another station on the main island, while Captain Cook and Dr. Solander remained at the fort erected at Otaheite, with Mr. Green, who there found the first external contact to be at 9, 25, 42, and the beginning of emersion and the total emersion 3, 32, 10, so that about six hours of serene and clear weather were required for this important observation. The latitude was 17° 29′ 15″ south,—the longitude 149° 32′ 30″ west.

In the same year the transit of Mercury was afterwards observed with equal success in the island of Major near Mowtohera on the 9th November. The weather, though it had been very thick for several days before, proved most propitious on the 9th. Mr. Green made the internal contact 12, 8, 58, the external 12, 9, 55. Captain Cook's observation differed one second as to the former, seven as to the latter. The latitude was 36° 48′ 28″ south.

From the observations of the transit of Venus by the expedition compared with the four others in Siberia, Lapland, Hudson's Bay, and California, the sun's parallax was determined at 8″·78, and his distance from the earth was thence deduced to be 93,726,900 miles, upon the supposition that the radius of the earth is 3985. The relative distances of the planets being known, those of them all from the sun were then determined.*

About six weeks after this important transaction, the *Endeavour* proceeded on her voyage; and first the navigators cruised for some time among the group, then little known, of the Society Islands. They next proceeded in search of the great Southern Continent, the Terra Australis, so long supposed to exist as a balance to the lands of the Northern hemisphere. On the 9th of October it was thought to be discovered, land being on that morning seen, with mountains of a lofty height; but it proved to be New Zealand, discovered in 1620 by Tasman, who called it Staaten Island, but never landed upon it; nor had it ever been since visited. Captain Cook during six months sailed round it, and fully explored its coasts. He found it to consist of two large islands. On the 31st March, 1770, he began his homeward voyage, and directed his course along the east coast of New Holland, never before explored, and indeed then quite unknown. On this voyage every opportunity was seized of extending our knowledge, both of the natural history and the geography of that vast region. The

* Mercury, 36,281,700; Venus, 67,795,500; Mars, 142,218,000; Jupiter, 487,472,000, and Saturn, 894,162,000.—See *Phil. Trans.*, vol. LX., 1574, Prof. Hawley's paper.

navigation was most perilous, because the coast is surrounded with sharp coral reefs, which rise suddenly like a wall from the water.

In spite of all difficulties he had safely run along about 1300 miles of this unknown and savage coast, when on the night of the 10th of June, some hours after an alarm of being on a coral reef had been felt, but passed away, a loud crash, followed quickly by a second, too plainly told them that the vessel had struck. The commander was instantly upon deck. I have heard Sir Joseph Banks describe his habit of nightly making all the arrangements, and giving all the orders which he deemed necessary when running along an unknown coast, and having a lee-shore under his bow. After the usual direction to call him if anything occurred, he would then calmly undress and go to bed, satisfied that all precautions had been taken for every event which could be foreseen or conjectured, and he was immediately asleep. Upon that trying occasion he was upon deck in his drawers as the second blow was struck, and he gave his orders with his wonted coolness and precision. The ship had grounded on a coral reef, which surrounded her almost to the surface of the water, but in a perfectly calm sea made no breach, and could not be seen. She had been carried by the waves clear over the ledge of rock, and lay on a hollow within it, in some parts of which the water was not more than three or four feet deep. The light of the moon shewed, to complete their distress, the sheathing-boards of the ship floating all around, and at last her false keel, so that their fate appeared imminent. It was necessary to lighten her by all means, though the probability appeared slight of her

holding together till another tide should enable them to get her off. The morning disclosed a full view of their dreadful and dismal condition. The land was at eight leagues' distance, and no islets lay in the intermediate sea, on which the crew could be landed and saved were they to quit the wreck, the boats being wholly insufficient to take all the crew at once. Nothing could possibly be more desperate than this appearance of things. Nevertheless, the sense of imminent danger produced the strictest discipline; no attempts at insubordination were perceivable; nor any discontent; but rather an alacrity, approaching to cheerfulness, was shown by all; and it was observed that their awful situation restrained any loose or profane expressions, so that not an oath was to be heard any more than a murmur. To lighten the ship, was now the first object. Every thing, therefore, was thrown overboard which could be spared, guns, heavy lumber, ballast, stores; and yet two tides elapsed before she could be got afloat. The moment of her floating was truly an anxious one; for the water had gained so fast that there was a great probability of her going down when no longer supported by the rocks. Every one saw in his neighbour's countenance a reflection of the despair he felt himself; but none gave way to such feelings, and the suspense continued in silent anxiety and dread. To their exceeding relief, at ten in the morning, when she rode in deep water, the leak was found to gain no faster than before, though her bottom was by that time considerably damaged. The water, however, could only be stemmed by the unceasing labour of the crew at the pumps night and day. The men were so exhausted, that finding the leak still gain upon them, they were on the

point of giving it up in despair when one of the midshipmen suggested the having recourse to an expedient which he had seen practised on a voyage to America, called *fothering*. It consists in drawing under the ship's bottom a sail in which there are stitched down oakum, flax, dung, and other thick and light substances. The motion of the leak draws in the sail with its stuff, and thus stops or lessens the leak. He represented this process as having proved so successful when he saw it tried, that the vessel was allowed to make her homeward voyage without further repair. Happily, being now tried, it succeeded to a wish, and enabled a single pump to keep the leak under.

They proceeded on their voyage till a river was discovered in which they could give the ship (whose name it now bears,) the necessary repairs. But upon laying her down and examining her bottom, they found to what a singular circumstance they owed their providential escape. A large fragment of the coral had forced its way through the timber, and was found sticking in the leak so as in a great measure to stop it, otherwise the size of the aperture was such that it must have at once sent the vessel to the bottom. The boats being wholly insufficient to save the crew, it may easily be conceived with what feelings all regarded this most extraordinary escape. Captain Cook, in his account of the voyage, gives high praise to all, (he mentions Mr. Banks and his party expressly,) for their cool and orderly conduct, and their firm and active exertions during this perilous crisis.

A new calamity, however, now appeared to sadden them, when the joy had scarcely subsided to which their merciful escape gave rise. The scurvy began to make its

appearance; and, among others, Mr. Green the astronomer, and Tupia, a native who had accompanied them from the wish to visit England, were so severely attacked that there seemed no means of stemming the disease. The country was explored to find fresh vegetables for the relief of the sick, and Mr. Banks, with his wonted activity and skill, served to guide these important expeditions. In the course of them he discovered the strange quadruped since so familiarly known both to naturalists and the vulgar, the kangaroo. He also found a supply of fish, turtle, and large cockles, and some vegetables, which proved a most seasonable relief. Nor were his researches concerning the manners and habits of the natives less interesting to science; indeed, it is principally to him that we owe the accurate descriptions of the natives seen and conversed with in the course of the voyage, a description which forms a new and important chapter in the general history of our species. In prosecuting these inquiries his courage was as conspicuous as his activity and his judgment. He would expose himself to their collected multitudes when some inadvertent proceeding had roused their anger, or would resist them when a thirst of plunder incited them to threaten; he would visit their habitations unattended by any force whatever; he would sleep for nights together on the ground at many leagues' distance from the crew of the vessel, and accompanied only by two or three attendants, regardless of the peril in which he must have been placed had the natives, possibly living close by, discovered the place of his repose.

After remaining on this coast above six weeks, they set sail again on the 3rd of August, but it was a grievous disappointment to find, on examining the pumps, that

they were all decayed and unfit for service, so that their only trust was in the strength of the vessel's timbers. Fortunately she made no more than an inch of water in the hour. A gale, which soon assailed them, and lasted for some days, did no material damage. The navigation was, however, beset by reefs of rocks and shoals, through the narrow openings of which they escaped almost miraculously. At length, after three months of constant peril, they burst as it were into a wide and deep sea, the swell of which showed that no land was near. The leak, however, had now increased to nine inches an hour, and in two days more they were surrounded by breakers, and in a more dangerous position than ever: nor did they escape except by the sudden springing up of a light breeze at the moment when they were helplessly and hopelessly drifting on the rocks.

Then, after repairing the vessel, Captain Cook proceeded on his cruise through the most intricate navigation in the world; then, too, first explored the track of reefs and islands on the northern part of the east coast; and having now explored and laid down above two thousand miles of coast, he formally took possession of the country for the British crown, giving it the name of New South Wales. From thence he proceeded to New Guinea, which he proved to be an island separate from New Holland; and, on the 9th of October he arrived at Batavia, where it was necessary to give the ship a thorough repair. Upon examining her bottom it was found in many places worn to the thinness of the sole of a shoe, and in other places it appeared that there had, since the accident, been nothing between them and the water but a lock of wool jammed between the planks; so small was the distance,

so feeble the barrier by which, in traversing the Indian Ocean, they had been for weeks separated and protected from the unfathomable deep! The gravest malady, however, that visited the expedition, now broke out in that pestilential climate. Seven of the crew died in a few days; and so many more were sick that not ten men remained fit for duty. Mr. Banks and Dr. Solander were so ill that their lives were despaired of, and they were only saved by going into the country. The iron frame of Cook himself was seen to yield; he, too, fell seriously ill. When they set sail, 26th December, Mr. Banks was carried on board, and his life still despaired of. The ravages of the fever continued throughout the voyage; and the nightly corse was frequently heard to plunge in the water. Before they reached the Cape, 15th March, three-and-twenty thus perished, including Mr. Green the astronomer, and Mr. Munkhouse, the midshipman, whose suggestion had saved the ship. After remaining there a month, they sailed for England. Nothing material occurred on the voyage, and on the 12th July, 1771, the *Endeavour* cast anchor in the Downs, giving up her gallant and prudent commander, with his adventurous company, to the gratitude and admiration of their country.

Before the vessel was allowed to have any communication with the shore, Captain Cook required every person on board to deliver up all his journals, notes, drawings and other papers—a requisition which was immediately and cheerfully complied with. No leave was given to make any disclosures or any separate publication until the Government had determined on the person into whose hands the official accounts should be placed for being communicated to the public. Dr. Hawkesworth

was pitched upon, and he is allowed to have performed his task with reasonable ability and with perfect fidelity. Mr. Parkinson, brother of one of Sir Joseph Banks's attendants, indeed his draughtsman, broke through the rule, and published a tract with drawings; but the book was speedily bought up by his liberal and spirited employer, and the irregular publication proceeded no further.

The results of the voyage were highly important. The observations necessary for ascertaining the solar parallax had been made with perfect success. The manners of the natives in the Society Islands had been examined, and the singular state of their society ascertained. Their products, vegetable, mineral, and animal, as well as those of New Holland, New Zealand, and New Guinea, had been fully explored, chiefly by Mr. Banks and his learned companion. The coast of New Holland had been thoroughly surveyed as well as the whole of New Zealand. These two islands had been shown not to form a portion of any southern continent; and the existence of such a continent as far as the 47th degree of south latitude had been disproved. All now joined in rendering due praise to the leaders of the expedition; and its illustrious commander was immediately raised a step in the naval profession. But it is fit that we here pause to reflect on the large share which Mr. Banks had in the conduct of the expedition, that is, in the collection of the vast and important information which was its result—information not confined to natural history, but extending to the manners, the habits, and the condition of the natives. It was from the record duly and faithfully kept of his observations that the history of the voyage was subsequently compiled; and Dr.

Hawkesworth *(Introduction)* expressly states that he felt concerned at delivering his account in the person of the commander, when, as to all but the nautical part, he would have preferred making Mr. Banks speak. This was proposed to him, "but the proposal was generously overruled!"

Important, however, as were the results of the voyage, it had not extended our knowledge of the southern hemisphere beyond the 47th degree; and as it was still supposed possible that the Terra Australis might be in a higher latitude, to which the instructions of Capt. Cook had not before reached, a new expedition was fitted out early in the following year, under the same great navigator. It is impossible to reflect without astonishment and admiration on that ardour for the advancement of science, and that noble disregard of both dangers and fatigues, and annoyance of every kind, in the pursuit of his favourite object, which could induce Mr. Banks again, after a few months of repose, to volunteer his services. These were gladly accepted, and his preparations were made on so vast a scale as required, even with his ample means, the raising of money by way of loan. He engaged Zoffany, the painter, and three draughtsmen; he took two secretaries and nine servants, well versed in the art of preserving plants and animals; all the books, drawings, and instruments required for his studies, and all the stores which so numerous a suite could desire, were provided with profusion, and everything seemed ready for his joining the expedition, when the constant thwarting which he received at each turn from the Navy Board, especially from its chief, the Comptroller, wore out his patience, and he reluctantly

abandoned this enterprise so near his heart. The name of the wrong-doer must not be suffered to perish, and thus escape the scorn which it so well deserves from each friend of science, and of a liberal and enlightened national policy; nor must it be concealed even because of the great service he had before rendered by his patronage of Capt. Cook. The Comptroller who thus thwarted both the wishes of the scientific world and the views of his own official superiors, probably from being one that

Hated learning worse than toad or asp,

was Sir Hugh Palliser. The common report that Capt. Cook had himself objected to and frustrated Sir Joseph's plan of accompanying him, appears contrary to all probability, and it rests on no evidence whatever. A letter of the Captain's is given in the Appendix, and it betokens an entire disposition to aid his friend and fellow voyager in his arrangements.

Mr. Banks, however, was determined not altogether to lose the fruits of his extensive and costly preparations for an expedition which he was thus prevented from joining. He fitted out a voyage to Iceland, which he undertook with his trusty and tried friend, Dr. Solander, and with a Swedish clergyman, Dr. Von Troil, of Iceland. Including draughtsmen, secretaries, seamen and attendants, there were forty persons in company; and in August, 1772, they reached the island. They remained there for a month, examining everything that related to its natural history, and especially the volcano, Hecla, and the boiling springs, Reykum and Geyser, for which it is famous. A rich collection of books and manuscripts was likewise purchased, and presented by Mr. Banks to the

British Museum. Dr. Von Troil, who afterwards became Archbishop of Upsal, published a full and interesting account of the voyage. Mr. Banks left the subject in his hands with his wonted aversion to the pursuit of literary fame, and his undervaluing of all but the exertions required to perform great or useful actions.

After his return to England, he settled in London, except the short period every summer which he passed at Revesby, his seat in Lincolnshire. His hospitality in the country was quite unbounded, and extended to all parties and all classes. His house in Soho Square was with its noble library, and precious collection of maps, drawings, and engravings, connected with botany, and the various branches of natural history, always open to the student and the author. Foreigners as well as natives were ever his welcome guests, and it was his delight to be surrounded by the cultivators and the promoters of science in all its branches.

In 1777, Sir John Pringle resigned his office as President of the Royal Society, and in Nov. 1778, Mr. Banks was chosen his successor. He lost no time in devoting himself with his accustomed ardour to the duties of his high station, and for some years his administration was carried on with general approval. But the person who undertakes to reform abuses in any public department, must lay his account with making enemies; and though these may be at the first few in number, and of little weight, they form a centre, around which will soon gather all, who on any account are discontented; all who regard a superior with envy or an exalted equal with jealousy; not seldom all who would fain displace him, and succeed to his station. So it fared with Mr. Banks;

for he too, had early perceived, and speedily checked some manifest abuses. The chief of these was the ease with which the door of the Society was opened, to admit all who desired to be Fellows. The Secretaries might be said almost to elect them at their pleasure; for whoever wished to add the title of F.R.S. to his name, on the title of a book, or as a Divine seeking preferment, or as a Physician in quest of practice, had only to become acquainted with these officers, and obtain their good will. Their constant intercourse with the members gave them so many opportunities of recommendation, that the election was quite secure of any whom they chose to favour. The President was little consulted, whose especial duty it, however, is, to preserve the purity of election, and to see that improper or improvident choice be not made. It is well known that D'Alembert, in allusion to the extreme prodigality with which the honours of the fellowship were distributed, was in use to ask jocularly any person going to England, if he desired to be made a member, as he could easily obtain it for him, should he think it any honour. The new President was resolved that this should no longer be allowed, and though the unlimited number of its fellows must always prevent the place of F.R.S. from being an object of so much value and of so much desire as that of an Academician in France, he thought that at all events it should be restored to somewhat of its primitive value, by being no longer indiscriminately bestowed. Two principles were laid down by him; *first*, that any person who had successfully cultivated science, especially by original investigations, should be admitted, whatever might be his rank or his fortune; *secondly*, that men of wealth or station,

disposed to promote, adorn, and patronise science, should, but with due caution and deliberation, be occasionally allowed to enter. There can be no objection to these principles, or to limiting the choice in future to cases thus defined. It is to be lamented that an end was not also put to the extremely absurd and even degrading statute by which, while all others must have their claims published twelve weeks before being considered, Peers and Privy Councillors may be balloted for the moment they are proposed—a law every way bad in itself, and worse in its execution, for that which is really intended as distinction, is in practice regarded as unimportant, and the claim of no person of rank is ever subjected to the least scrutiny; he is chosen at once on being proposed. But the other and pressing case of abuse, the indiscriminate election, was at once corrected by Mr. Banks, and with a firm hand. He announced to the secretaries and members his determination to watch over the applications for admission, and the election by ballot. Previous to the election, he spoke to the members who usually attended; he gave his opinion freely on the merits of candidates, and when he considered a rejection proper, he hesitated not to advise it—giving his opinion, and recommending, or asking a black-ball from individuals at the time of the ballot. The consequence was the rejection of several persons, and this was afterwards made the chief ground of attack upon him in the dissensions which unfortunately broke out, and for some time grievously disturbed the peace of the Society.

The immediate occasion of these dissensions, however, was an accident of a different kind. The office of Secretary for Foreign Correspondence had been conferred

upon Dr. Charles Hutton, a mathematician of distinguished reputation, and whose official duties at the Royal Academy of Woolwich obliged him to reside there. Some neglect of his duties as Secretary was said to have been thus occasioned. Upon examination, the charge was found to rest on very insufficient grounds; and the childish complaint of M. Bonnet, of Geneva, that a dry and laconic answer had been returned to his letter, accompanying a present of his works, really appears to be the only remains of the accusation which a full inquiry left standing against Dr. Hutton.* It was a much more serious charge, that he held no communication with the President; and certainly this was mainly imputable to his residing at a distance. The Council passed a resolution, 20th November, 1783, recommending that the Foreign Secretary should reside in London, and Dr. Hutton tendered his resignation. The emoluments of the office were only twenty pounds a-year, from a bequest of Mr. Keck half a century before; and Dr. Hutton having to hire chambers in town for the performance of his official duties, had been in reality a loser by holding the place.

This resolution of the Council, and resignation of the Foreign Secretary, immediately caused a great sensation in the Society. It appears that the embers of discontent with the President's administration had been for some time smouldering; and now the spark accidentally flung, made the embers break out in a flame. Dr.

* The feeble and very trimming tract of Dr. Kippis on these disputes, seriously represents the dry style of Dr. Hutton's letter as worthy of blame. The Doctor desiderated more courtesy, that is, flummery after the foreign fashion.

Maskelyne, the Astronomer Royal, really considered his friend Dr. Hutton as ill-treated; so might Baron Maseres, and one or two others; but the most active mover, who indeed took the lead in the opposition to the Council, was Dr. Horsley, a priest of intolerant nature, of extreme arrogance, of violent temper, and guided by a most inflated estimate of his own importance as a cultivator of mathematical science, in which capacity he was nearly if not altogether insignificant. Finding himself joined with Dr. Maskelyne and Baron Maseres, he chose to hoist a standard for the mathematical sciences in opposition to natural history, which the President and his especial friends chiefly cultivated; and he considered the treatment of Dr. Hutton to be an overt act of hostility to those studies to which he untruly represented his own life as devoted.

The motion was carried, by a majority of thirty to twenty-five, that Dr. Hutton be thanked for his services as Foreign Secretary; and Sir Joseph Banks's party committed their first error in opposing this proposition, on a ground, plausible, but wholly insufficient, that the Council alone, and not the Society at large, had the means of judging how far the duties of Dr. Hutton's office had been well performed. The New Council coming into office 29th November, affirmed, with a single dissentient voice, the resolution of their predecessors, requiring the Foreign Secretary to reside in London. Before the next meeting of the Society, Dr. Hutton's written defence was read, and a resolution was passed by a large majority (45 to 15), that, "if he had been censured, he had fully justified himself." Here the matter might have ended, and here it certainly would have ended, had the case of Dr.

Hutton alone furnished the matter of dispute. But it was the occasion, not the cause of the dissension. A party had clearly been formed against the President: at the head of that party Dr. Horsley had placed himself; he had raised an absurd cry that the mathematics were neglected, and botany alone patronised; and he was plainly looking to eject Sir Joseph Banks, and raise himself to the chair. This enabled the latter to commit his second great error —the calling in members who were only titular, and never took a part in the ordinary business of the Society, any more than they were capable of sharing in its labours. These came down on the 8th January, 1784, in great numbers; and, after a long debate, they carried, by a large majority of 119 to 42, a vote of confidence, "approving of Sir Joseph Banks as President, and resolving to support him in his office." At a subsequent meeting, a motion for rescinding the resolution of the Council on the residence of the Foreign Secretary, was lost by a majority of 85 to 47; as were afterwards, by still larger majorities, three several motions, censuring all endeavours of the President to influence the votes of members by solicitation, either on elections or on any other matters. The two most important of these motions were lost by 115 to 27, the other by 102 to 23. Mr. Maty, a person of some accomplishments, of amiable character, of hasty, fickle temper, who had warmly sided with the President's opponents, soon after resigned his place as one of the ordinary secretaries; Dr. Blagden was chosen his successor by 139 to 39, Dr. Hutton being the other candidate. It was possibly a third error of the President, that he sought for a defender in a learned equity barrister, the Accountant-general, Mr. Anguish, who was unknown in

the Society for any philosophic attainments; while the opposite party, in availing themselves of Mr. Poore's and Mr. Watson's aid, had advocates who were respected in the literary world,

The main charge used in these debates against the President, was his interference with elections; and this was loudly objected to, both as overbearing, even despotic, and as having excluded several persons, worthy of the honour they sought. The general objection was wholly groundless. Sir Joseph Banks only interfered as he was bound by the duty of his office to interfere; and if his frank and manly nature, despising all indirect roads to his object, scorning all covert proceedings to attain that which he felt bound to seek—the honour and the advantage of the Society—made him openly state his objections to candidates, and openly ask his brethren to join in rejecting them, instead of canvassing against them in the dark, no better reason can be assigned for loudly applauding the course which he took. That he might have committed mistakes in one or two instances is equally certain. The rejection of Major Desbarres, already mentioned as a pupil of Bernouilli's, and the instructor of Captain Cook, and soon after appointed to a foreign government, was the strongest case cited; the only other person of admitted merit, among the twelve black-balled in four years, was Mr. Henry Clarke of Manchester, schoolmaster, and a writer of some merit on mathematical subjects; and all admitted that the President's interference had proved most useful to the Society's honour, in carrying the rejection of four or five unworthy candidates. These, under the old and lax system, would in all probability have found their way

into the Society, though their object only was to use the title of Fellows as a snare for enticing customers.*

As for the charge of favouring natural history at the expense of the severer sciences, never was anything more unfounded. Full as many papers had been received and printed by Sir Joseph Banks's Council on the latter subject, as had ever been so treated in any other period; quite as small a proportion of papers upon the former. The Copley medal, five times bestowed, had been thrice given to mathematical and astronomical papers, twice to chemical; and I may add, never either then or since, to papers upon the subjects which the President was supposed most to favour. The appearance of a naturalist in the chair was a phenomenon by no means now first observed in the sphere of the Society. Sir Isaac Newton himself had been succeeded by Sir Hans Sloane, who filled the chair fourteen years, and preceded by Lord Somers, whose eminence is certainly not scientific, though it may be of a higher order. Of the nineteen Presidents before Sir Joseph Banks, nearly, if not quite the greater number were men of eminent station, who never, either before or after their elevation to the chair, were known to have cultivated, much less improved, any branch of "natural knowledge." Nor let it be supposed, as Dr. Horsley and his more factious adherents used to represent, that none but botanists opposed their proceedings, and sided with the President. The names of Cavendish, Watson, Fordyce, Heberden, Hunter, Kirwan, are quite sufficient, both in number and value, to rescue Sir J. Banks' supporters from that imputation, and to take from their

* One was the patentee of a new water-closet.

adversaries all pretence that they had a monopoly of important science.

Although the majorities were obtained and the debates chiefly carried on by men who did not usually attend, there can be no doubt that the Society was greatly benefited by their interference. The asperity which had marked the progress of the contest was testified in the speeches of the opposition leader, Dr. Horsley. He had, moreover, given a great and threatening notice of so many motions as might occupy the Society for the whole session, and until the annual period came round for electing the officers, when he plainly hinted his hope that another President would be chosen. The haughtiness of this arrogant ecclesiastic's tone in the debates gave general offence, even to those who might be disposed to admit the cleverness of his speeches. When, perceiving a defeat approaching, he threatened a secession of the mathematical party, he exclaimed, "The President will then be left with his train of feeble amateurs and that toy* upon the table;—the ghost of the Society in which Philosophy once reigned, and Newton presided as her minister."

To have saved the Society from such a consummation as being under Dr. Horsley's presidency was truly a service of the highest value, which, in a somewhat unusual though certainly not an irregular manner, was rendered by the members who attended and resisted the factious combination. His assuming the station of leader among the mathematicians was altogether preposterous; and he might have been raised to the chair, by dint of the

* The mace, to which he pointed.

intrigue which he set on foot, and the ferment which he excited in the bosom of the Society, without any victory whatever being gained for mathematical and physical science. His writings had never placed him higher than a mere "amateur," and a somewhat "feeble amateur" in all essentials, though stout enough in the overbearing language of his polemical writings, and magniloquent enough in the diction of his self-laudatory prefaces. Some of his efforts are merely puerile, like the Sieve of Eratosthenes, which he tried, he says, "*Diis propitiis usus;*" some are far too easy to confer any fame, like the restoration of Apollonius's Inclinations; while his great attempt, an edition of Newton, is confessed by all to be as signal a failure as any on record in the history of science.*

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* The reader who compares Bishop Horsley's praises of his own exploits with the exploits themselves, will readily concur in Professor Playfair's opinion of them expressed delicately but sharply in the fourth volume of the 'Edinburgh Review.' He has not indeed entered into particulars, as to the great failure, the 'Newton.' But who can read an edition of the 'Principia,' the 'Optics,' and the 'Fluxions,' published in 1778—80, and not marvel at the author's apparent ignorance of all that had been done since Sir I. Newton's time? There is not a word of the Calculus of Variations or of Partial Differences,—not an allusion to D'Alembert's principle of Dynamics,—nor to the objection of the Bernouillis and D'Alembert, touching the Hydraulic Cataract;—no reference to the progress of Hydrodynamical science;—nor to the discoveries of Dollond and others on refraction. Indeed the 'Optics' is given almost without note or comment, while the comments on the 'Principia' are only upon passages of no difficulty, leaving the darker ones in their original obscurity, unless where reference is made to the commentary of Le Sueur and Jacquier,—Vargnon and Herman and the Bernouillis are unnoticed. In short no one can read the book, however cursorily, and rise from its perusal with the least respect

The escape from such a chief was further enhanced in value by the excellent qualities of him whom the victory kept in the chair. He showed no jealousy of any rival, no prejudice in one person's favour rather than another's. He was equally accessible to all, for counsel and for help; where his own knowledge did not suffice, he could easily obtain the aid of those more devoted to the subject of the application. His house, his library, his whole valuable collections, were at all times open to men of science; while his credit, both with our own and foreign Governments, and, if need were, the resource of his purse, was ever ready to help the prosecution of their inquiries. I know of many persons, since eminent, who when only tyros in science, and wholly unknown to fame, have been patronized by him; and one of these tells me, with grateful recollection, of the kindness he experienced in his younger days from that useful and liberal patron, "who would (says my friend) send all over Europe and further to get either the information or the thing that I wished to have." Where private aid failed of the desired effects, he had access to the Government; he could obtain countenance and assistance from the public departments, beside removing those many and so often insurmountable obstacles which the forms of office and the prejudices of official men plant in the way of literary research.

Many circumstances concurred to give Sir Joseph Banks the power which he so largely exercised of patronizing and promoting the labours of scientific men. His ample

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for the Right Reverend Editor, or the least disposition to admit his claim either as head of the mathematicians whom he marshalled to defeat, or as aspiring to fill the Society's chair.

fortune; the station which he filled in society; the favour which he enjoyed at Court and with the Ministers of the Crown; the fame of his voyages; his indefatigable industry; his ever-wakeful attention to the representations and requests of the student; his entire freedom from all the meaner feelings which mere literary men are but too apt to entertain one towards another; his great natural quickness and unerring sagacity, never leaving him long to seek for the point of any argument, nor ever suffering him to be deceived by plausible errors or designing parties; his large and accurate knowledge of mankind, and of men as well as of man; the practical wisdom which he had gathered from extensive and varied experience—all formed in him an assemblage of qualities, natural and acquired, extrinsic or accidental, and intrinsic or native, so rare as had hardly ever met together in any other individual.

> . . . Quid virtus et quid sapientia possit
> Utile proposuit nobis exemplar Ulyssem.
> . . . . . Multorum providus urbes
> Et mores hominum inspexit; latumque per æquor
> Dum sibi, dum sociis reditum parat, aspera multa
> Pertulit adversis rerum immersabilis undis.
>
> (*Hor. Ep.*)

He was thus for upwards of forty years the great promoter of philosophical pursuits; and it may fairly be said, that no one, either before or since his time, ever occupied the high station in which he was placed with such eminent advantage to the interests of the scientific world.

His own studies continued, as they always had been, devoted to natural history; and botany was the portion of it which he chiefly loved to cultivate. He

was, perhaps, the most accomplished botanist of his day, and among the very first in the other branches of natural history. During the greater part of his life his time and his fortune were assiduously bestowed on the preparation of a magnificent series of botanical drawings and engravings. But he never retained any of these, as it were, locked up for his own gratification; and his habitual indifference to literary fame made him so slow to publish, that he is believed to have as constantly given over to other cultivators of the same studies the fruits of his own labour, as these fruits were ripened and ready to be gathered in; and while all men's books were crowded with his designs, and all men's inquiries promoted by the stores of his knowledge, he alone reaped no fame from his researches, nor profited by the treasures which he had amassed, except by the gratification of seeing them made subservient to the progress of his favourite pursuits.

A baronetcy had been bestowed on him in 1780, and in 1795 he was invested with the Order of the Bath; a rare instance in those days of this distinction being bestowed on any but a military or a diplomatic person. Not, however, by any means the first instance; for Sir Robert Atkins, the Chief Baron, was also a Knight of the Order. In 1797, he was made a Privy Councillor. He was chosen Recorder of Boston on the Duke of Ancaster's death. Though often pressed to take a seat in Parliament, he always declined. The favour which he enjoyed with George III. was of long standing: that Prince loved the manly frankness of his character, the courage with which he had so often exposed himself to danger in the pursuit of knowledge, and the firmness with which his conduct was marked on all trying occasions. Sir Joseph's political principles, too, those of a high tory,

were much to the Monarch's liking; and a country gentleman who never troubled himself with Parliamentary life, nor ever desired to rise above the rank he was born to, was sure to find a friend in His Majesty. Though a tory, and very firm in his opinions, both in Church and State, he was anything rather than a party man. He never interfered in politics beyond using his legitimate influence in Lincolnshire and Derbyshire, where his property lay, to aid those country gentlemen whom he believed fitted to make useful representatives of the landed interest; and so entirely devoid of common party feelings was his use of this influence, that he always supported Lord Yarborough, then Mr. Pelham, a whig, as well as Mr. Chaplin, a tory. This just and impartial conduct was not displeasing to the King; and among other marks of good-will, was his recommending to Sir Joseph an attention to agricultural pursuits. I have heard him say that he took to farming by the King's desire. He pursued this pleasing occupation with his characteristic energy, and understood its principles thoroughly, as he practised it with far more than the success that usually attends amateurs. When the King fell hopelessly ill, in 1811, I well remember Sir Joseph Banks saying, he had ceased since then being a farmer, having only "taken up the trade by His Majesty's commands."

A common story is to be found in the slight attempts that have been made to write his life, as if the Ministers were used occasionally to employ his personal influence with the King, to obtain his consent to measures which he disliked. I will venture to give this statement a very peremptory contradiction. I am pretty confident that he never would have undertaken

any such mission; but I am perfectly certain that the King never would have suffered Sir Joseph to approach him on any subject of the kind. This opinion I can state the more emphatically, since my worthy friend Sir E. Knatchbull, who did me the favour of examining this Life, gives me the most positive assurance of his uncle never having at all interfered, as the story asserts he did. An interference of a very different description he did exert, and with the happiest results. During the long war, which desolated the world by land and by sea, after the year 1792, he constantly exerted himself to mitigate its evils, and alleviate its pressure upon men of science and upon the interests of philosophy. It was owing to him that our Government issued orders in favour of La Pérouse, wheresoever our fleets should come in contact with that unfortunate navigator. When D'Entrecasteaux was sent in search of him, and Billardière's collections were captured and brought to England, Sir Joseph Banks had them restored to him, and without even opening to examine them, as if he feared that any one should profit by any discoveries save their rightful owner, the author. On ten several occasions did he procure the restoration to the Jardin des Plantes of collections addressed to that noble establishment, and which had fallen a prey to our naval superiority. He sent to the Cape of Good Hope, to recover some charts belonging to Humboldt, which our cruizers had seized, and in no instance would he suffer the expenses he had undergone to be repaid. He even interfered to remedy injuries which foreign nations had inflicted on scientific men. Broussonet had fled from France to save his life from the anarchists of Paris. Sir Joseph Banks directed his correspondents in Spain and in Portugal to

supply his wants; and he found a friendly purse open to him both at Madrid and at Lisbon. Dolomieu, cast into a dungeon in Sicily by the tyranny of the profligate and cruel Queen, experienced the humanity of Sir Joseph during a long captivity, although his unwearied efforts to obtain his liberation failed of success. His own countrymen, when detained by the arbitrary and perfidious policy of Napoleon, were in repeated instances indebted to Sir Joseph Banks for their permission to return home; and a learned friend of mine, one of the first Oriental scholars of the age, the late Professor Hamilton, must have perished at Verdun but for his generous interference. By his interposition the Institute exerted itself in various other cases; and whenever it could be made to appear that a man of science or of letters was among the detained, no very strict scrutiny being exercised either by Sir Joseph or his Paris colleagues, the order for his liberation was applied for and obtained.

In 1802 he was chosen one of the Foreign Members of that illustrious body, and in acknowledging this high honour he expressed his gratitude in warm terms. Much offence was given to the zealots of the Anti-Gallican party in this country; the remains of Bishop Horsley's party were roused to censure him; an anonymous attack upon him was published in the daily papers, and afterwards acknowledged to have proceeded from the Bishop; Mr. Cobbett, then as bitter an enemy of France and of peace as he soon afterwards became a zealous friend, addressed a letter to the Members of the Royal Society, calling upon them to depose the President from the chair, because he had called the Institute the first literary

body in Europe; but the silly faction and the paltry storm it had raised, soon sank into their natural insignificance, and all men of sense saw plainly that nothing in the complimentary language of his letter exceeded the ordinary limits of such compositions, or betokened the least want of respect for his own Society.*

His assiduous cultivation of natural history, and his devotion to agricultural pursuits, did not prevent him from taking the most active part in promoting the discovery of unknown regions, the most favourite of all his pursuits. He was the real founder of the African Association; and it is well known that when Ledyard, the most accomplished of the travellers next to Mungo Park, was in want of support on his celebrated journey, it was on Sir Joseph Banks that he drew a bill, which in the remote region where the traveller then was, found an immediate honour and discount. The captivity of Flinders, whom I have heard him more than once compare to Cook, was greatly mitigated by his exertions and influence with the French Government; and he not only promoted discovery with all his means to the end of his life, but applied himself vigorously to improving the discoveries successively made to the real use of mankind. The good treatment of the aborigines was ever a main object of his humane exertions. He it was who may be truly said to have planted and founded the colony of

* If Mr. Cobbett was ever less happy on one occasion than another, it was when he meddled with such subjects. He congratulated his country in one of his papers on Captain Glennie having discovered the quadrature of the circle,—the captain having gained his scientific fame, in Cobbett's eyes, by joining in the combination against the Duke of York, a year or two before.

Botany Bay. He it was, too, who suggested the means of transplanting the bread-fruit tree from the South Sea Islands, to the West Indies, (the object of Captain Bligh's unfortunate voyage,) and of also naturalizing there the mango of Bengal. The fruits of Ceylon and of Persia were successfully, through his exertions and experiments, brought from thence to the West Indies and to Europe. So little did his love of plants end, like that of other botanists, in mere description and classification, in the composition of a catalogue, or the preparation of a Herbal! Horticulture, indeed, was a subject the usefulness of which was sure strongly to attract hi care, and accordingly the Society for its improvement owed its success, if not its origin, to him. The British Museum was a constant object of his anxious care, and during the forty-two years of his official trusteeship he paid unremitting attention to its concerns, and largely endowed it with presents; he bequeathed to it hi noble library and all his principal collections.

I have already said that his published works bore no proportion either to his scientific labours or his exertions in behalf of learned men. They consisted only of some tracts on agricultural and horticultural subjects, as the mildew in wheat, and Merino sheep— on Indian and spring wheat—on the Spanish chesnut—on Roman forcing-houses—and some others.

For the last thirty years of his life, Sir Joseph Banks suffered frequently and severely from gout; and during the last fourteen years he was so much a martyr to it, that he could take no exercise on foot. He tried various expedients to lessen the violence of the attacks, such as giving up the use of fermented liquors, and abstaining

entirely from animal food; but if the fits were less severe, their recurrence was more frequent. Small doses of Husson's medicine were latterly resorted to with considerable effect; and with his wonted sagacity and firmness he met the objections of those who urged how certain the tendency of that cure was to shorten life, by asking "how many years they supposed he could hope to live if he took none of it?" At last he gradually sank under the exhausting effects of this ailment, after having for a considerable length of time entirely lost the use of his lower limbs. He died at his villa of Spring Grove, Hounslow, 19th June, 1820, in the seventy-eighth year of his age, after suffering with the greatest cheerfulness for many years the pains of this tormenting malady, and its debilitating effects, much more intolerable to one of his active habits and strong animal spirits.

The directions of his will were characteristic of his tastes as a lover of science, and its provisions truly marked the man, ever careless of the fame of great and good actions, and only intent on performing them.—To Mr. Brown, his librarian, he gave an annuity of 200*l.*, with the use of his library and collections, on condition that he should continue his studies in natural history, and assist in superintending the Botanic Garden at Kew.—To Mr. Bauer, who had been his draughtsman for thirty years, he gave an annuity of 300*l.*, on condition of his continuing to reside at Kew, and to carry on the drawings of the Kew plants.—He gave the whole collection of the Kew drawings to the King, and strongly recommended the appointment of a resident draughtsman, being of opinion that no botanic garden can be complete without one. He adds, that he had hoped this truth would have

obtained from the Government a salary for Mr. Bauer, but if not, he charges it on his Lincolnshire estates. So far the bequests. The directions were, that he should be interred in the parish where he might happen to die; he entreated his relatives to spare themselves the affliction of attending the ceremony; and he earnestly requested that they would not erect any monument to his memory.

He left his widow surviving; she was the daughter and co-heiress of Mr. Hugessen, of Provender in Kent, and had been married to him in 1779. His mother only died in 1804, at a very advanced age; and his sister, who always resided with him, died in 1818. He never had any children; and his large estates devolved upon his wife's relations, the Knatchbull and Stanhope families, the late Sir E. Knatchbull having married Lady Banks' sister, and co-heiress with her; and his property in Derbyshire and Lincolnshire being left by his will to Colonel Stanhope, brother of the present Earl, who was the grandson of his aunt, Margaret Eleanor Banks, by Henry Grenville, brother of Earl Temple. Sir E. Knatchbull, his nephew by marriage, was appointed executor of his last will.

APPENDIX.

I.

Capt. Cook to Mr. Banks.

"Dear Sir,

"I received a note from Mr. Marsh, of the Victualling Office, wherein he desires that we will call upon him on Friday morn, as he is obliged to attend at the Admiralty on Thursday. I left a line at your house yesterday, desiring to know your sentiments concerning a stove for the cabin, it being necessary the officers of Deptford Yard should know how to act. If you approve of a green baize floor-cloth for the great cabin, I will demand as much cloth from the Yard as will make one. As you mean to furnish the cabin well, I think you should have brass locks and hinges to the doors, &c., this, however, will be a private affair of your own, as nothing of this kind is allowed; the round-house will be fitted in this manner at my expense.—Thus far I had got with this letter when your note arrived: I think it a good thought to take Mr. Buzagio's stove with you, as it may be very useful on many occasions. I shall go to Deptford to-morrow to give directions about the other. Whenever it is certain that Dr. Lynd goes with us, I beg you will let me know by the penny post. My respects to the Dr.*, and am,

"Dear Sir,

"Your very humble servant,

"James Cook.

"Monday Evening, Six o'clock."

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* Dr. Solander.

Dr. Priestley to Mr. Banks.*

"Dear Sir, "Leeds, December 10, 1771.

"After the letter which I received about a fortnight ago from Mr. Eden, who informed me that he wrote at your request, I cannot help saying that yours and his, which I have now received, appear a little extraordinary. In the former letter there was far from being the most distant hint of any objection to me, provided I would consent to accompany you. You now tell me that, as the different Professors of Oxford and Cambridge will have the naming of the person, and they are all clergymen, they may possibly have some scruples on the head of religion; and that, on this account, you do not think you could get me nominated at any rate, much less on the terms which were first mentioned to me. Now what I am, and what they are, with respect to religion, might easily have been known before the thing was proposed to me at all. Besides, I thought that this had been a business of *philosophy* and not of *divinity*. If, however, this be the case, I shall hold the Board of Longitude in extreme contempt, and make no scruple of speaking of them accordingly, taking it for granted that you have just ground for your suspicions.

"I most sincerely wish you a happy voyage, as I doubt not it will be greatly to the emolument of science; but I am surprised that the persons who have the chief influence in this expedition, having (according to your representation) minds so despicably illiberal, should give any countenance to so noble an undertaking; and I am truly sorry that a person of your disposition should be subject to a choice restricted by such narrow considerations.

"I am, dear Sir,

"Your obedient, humble servant,

"J. Priestley."

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* See 'Life of Priestley,' vol. i.

"To Geo. Rose, Esq., Treasury Chambers.

"My dear Sir, "Soho Square, March 2nd, 1787.

"By an Arrêt, dated April 23, 1775, M. Turgot took off all kinds of droits from books imported under the most general description, as "*reliés ou vieux ou neufs.*" I wish I had his Eloge, in which the compliments paid him on the occasion are pretty. I have sent to borrow it from Lord Lansdowne's library, but his Lordship has not yet risen after the fatigues of last night. The exemption is still continued, as may be seen in the *Recueil des Droits*, printed last year.

"Far be it from me to press the subject. I shall always consider literature as under great obligations to Mr. Pitt, who scrupled not a moment to forbid the additional tax intended by the compilers of the rate-book; but sure he might, by giving up a very small receipt, oblige a numerous body whose claim of exemption has been acceded to by the French nation, which circumstance, however, I only wish to bring forward as my apology for the trouble I have given.

"Should it be thought expedient to continue the tax upon bound books, lest the bookbinders might suffer, a clause allowing a quarter of a hundred instead of under ten pounds for each man's private books would make strangers easy; and in that case, if the unbound were quite given up, with only the proviso against books of which editions are extant, printed in England, we should be secured from piracy, and a small portion indeed of revenue sacrificed.

"In France those who attempt to import a pirated edition are very roughly handled by other laws.

"Believe me, dear Sir,

"Most faithfully,

"Your obliged humble servant,

"Jos. Banks."

"Mr. Parkinson, "July 17th, 1809.

"I am not certain that I well understand what Mr. Lacy has been doing in his capacity of Inspector; his aim I conclude in surcharging my tenant at a higher rent than my farms are let for, is a trick by which he expects to obtain an

increased tax on the lands I hold in my own hands; he dares not, I am confident, venture even to suppose that I have let my land collusively, or received any fine or other consideration in hand to lower the amount of the reserved rent.

"I let my land, as you know, at a rent which I think and believe to be its real value, that is, I take to myself such a share of the produce as ought in my opinion to belong to the landlord, leaving the tenant what in my opinion he ought to have as his share, and I do not calculate this idly or by guess. You have laid before me on divers occasions what the produce of a farm will be, if well managed in an average season, stating the gross amount of receipt on each article of produce valued at an average price, such as you and I think likely to be permanent; of this sum you and I allot what we think necessary for the cultivation of the farm, what we think the tenant ought to have to pay his household, pay his tithes, rates and taxes, and allow some savings to him if he is industrious and frugal; the rest is apportioned to me as my share, and more than that portion no landlord ought to take, and in fact most landlords of gentlemen's families and liberal educations are contented with such a proportion.

"Those who exact higher rents, who have no feeling for the oppression of their tenants, who employ attorneys as their stewards, or keep lawyers in pay by retaining fees to watch over their interests, and recover arrears from their tenants when they can no longer support their families, and who are at last compelled to deduct from their net profits the cost of law charges, the losses suffered by tenants unable to pay the whole of the arrears, and the increase of poor's rates on their estates, which must arise from the persons who used to pay them being reduced to the necessity of receiving them or of starving, are surely not to be considered as examples which Government wishes to hold up for imitation, and compel humane men to adopt.

"If I am mistaken in the rate I have set upon my lands as rent, the Commissioners will by enforcing the surcharges put me right; I must in that case raise the farms not in lease to the rent they consider as a proper one: Government will in that case have the credit of raising my estate very much to

my emolument, as I must receive 18*s.* for every 2*s.* they get, but the whole of the unpopularity of the measure must rest on their shoulders.

"Thus much for my tenants: for the lands I hold in hand, I have no objection, if the Commissioners choose to rate me so, to pay at the value fixed upon it by the quality men; they acted under parliamentary sanction, and upon their oaths; they are persons over whom I have no kind of influence, and if I had, I should have urged them to value as high as possible, because in that case I should get the greater share of the Fen to be divided. I have, however, entirely acquiesced in their valuation, and have received my share of Wildmore Fen at their rate; am I therefore to receive under the sanction of one Act of Parliament at a low rate, and to be taxed under another Act at a high one? English policy does not admit such an idea, and I doubt whether it would be well received in Turkey or in Barbary; besides, no increase in the value of stock has taken place since this valuation was made.

"I thank you much for having provided me with a pony. I can do without it till I come to Revesby: you will by that time be perfectly acquainted with its qualities. Perfect sure-footedness is my great object. I am weak; and if a horse should fall under me, I cannot hold myself upon him.

"You were right in telling the Fen Commissioners, that if they do not allow to the soke their just rights over the Fodder Fen, I must seek justice elsewhere. The Fodder Dike is so strong an argument, and the constant usage, that it would be in truth a crying injustice to be blind, as they seem to wish to be, to a right so substantially established.

"If you wish for further instructions on the subject of the surcharges, be good enough to write to me, and state what your opinion is, and what other people think. I could easily fill another sheet of paper, for I am sure that Government never meant a surcharge on property let honestly and fairly, however low that rent might be; all they sought for was to check collusion and other kinds of cheating.

"Your sure friend,

"Jos. Banks."

SIR J. BANKS TO LORD GRENVILLE.

"MY LORD, "Soho Square, July 20th, 1796.

"When I had the honour near three weeks ago of waiting upon your Lordship, by your appointment, on the business of M. de Billardiere, I was in hopes I had convinced your Lordship that the measure of returning to that gentleman the collections of natural history he had made during his employment as a naturalist on the voyage of discovery sent from France for the purpose of inquiring into the fate of the late M. de Peyrouse, was a measure likely to do honour to the national character of the English, as a people loving science and abounding with generosity, as well as with justice, and liable to no reasonable objection whatever.

"I was in hopes also that your Lordship would consider it as creditable to His Majesty's Ministers to grant in this instance a truce to the unfortunate animosities at present subsisting between England and France, by following the precedents of their predecessors in the case of M. de Condamine, of the French nation under their late form of government in that of Captain Cook, and under their present one in the mistaken instance of M. Spillard.

"I hope I have not been mistaken, though your Lordship will allow that I have reason to fear the contrary, because you promised me a speedy answer, and I have not heard from your Lordship since. Respecting the opinion of M. de Billardiere having received any special commission or enjoyed any salary from the late King of France, I have made every inquiry in my power without learning anything to make me believe that to have been the case: the late King did certainly draw up private instructions for M. de Peyrouse, and this has probably been the origin of the mistake.

"Allow me then, my Lord, to request a speedy answer to this interesting subject, and to deprecate a refusal. M. de Billardiere is, as I am informed by printed documents, at this time Director of the Botanic Garden at Paris, at the head of his department of science, and in a country where, however humanity may have been outraged by popular leaders, science is held in immeasurable esteem, he will have it in his power

to appeal to Europe, if in his case the justice is refused which was formerly granted by us to De Condamine, and by his countrymen to Cook; and I fear Europe, if such an appeal is made, is more likely to take part with the complainant than with a nation which for the first time refuses a reasonable indulgence to science in alleviation of the necessary horrors attendant on a state of warfare.

"As I possibly may have occasion to correspond with your Lordship on another subject similar in principle to that now under consideration, I take the liberty to state as follows:—

"The French either have, or will soon solicit from His Majesty's Ministers, a passport for a ship intended to be sent to Trinidad for the purpose of bringing away a collection of living plants deposited there for fear of capture. I hope, my Lord, that this request will be readily granted. The credit Europe has given to the English for having brought useful plants from the South Seas to their colonies in the west, has fully shown that all good men respect the extensive benevolence of increasing the food of mankind, by removing useful plants to countries where Nature has not provided them; and our amiable Monarch has set the example of sending useful plants from his Botanic Gardens to the East, to the West Indies, and to Africa.

"Besides, my Lord, the very application virtually offers, during the horrors of a war unprecedented in the mutual implacability of the parties engaged, an unconditional armistice to science; surely, my Lord, such an offer should not be neglected; the ready acceptance of it may be the signal of the return of the dawnings of good will towards men, and produce consequences, in the present position of Europe, valuable beyond appreciation to all the nations who inhabit it.

"I have the honour to be, my Lord, with due respect and unfeigned esteem,

"Your Lordship's obedient,
humble servant,
"Jos. Banks."

Sir J. Banks to M. Charretie.

"Sir, "August 10th, 1796.

"I have great pleasure in acquainting you that I am now fully empowered to deliver to you the collection made by M. de Billardiere, in order to their being put on board the next Cartel ship, and conveyed by you to that gentleman.

"If you will do me the honour of calling in Soho Square, at any time to-morrow before twelve o'clock, I shall have great pleasure in consulting with you on the proper mode of packing them safely for the voyage, and also on the time which you choose to have them conveyed to the place from whence they are to be put on board: matters which, I apprehend, cannot be so well settled any where as on the spot where the collection now is."

M. Charretie to Sir J. Banks.

"Walcot Place, le 10 Août, 1796.

"M. Charretié fait bien ses complimens à Monsieur le Chevalier Banks, et ne doutant pas que ce ne soit à ses demarches que le Gouvernement Français soit redevable de la remise de la collection de M. la Billardière, il peut être persuadé de la reconnoissance du Directoire Exécutif. M. Charretié aura l'honneur d'aller demain avant midi témoigner à Monsieur Banks toute sa gratitude particulière pour ses bons offices, et conférer des moyens les plus propres à faire l'envoi de la collection dont il s'agit."

II.

The very imperfect manner in which the attempts to write Sir Joseph Banks's Life have been made we have already had occasion to remark, as well as the errors which have been introduced into the accounts hitherto given of that eminent person. There is but too much reason to fear that this work ill supplies the defect in our scientific history, owing, among other things, to his having strictly ordered all his letters and other manuscripts to be destroyed. But errors have been corrected, and it is hoped that some important particulars have been given.

Among the accounts hitherto offered to the world those of the French writers are beyond all comparison the most erroneous and indeed fanciful. The 'Biographie Universelle' may be cited as peculiarly abounding in such inventions.—The statement that Sir Joseph allowed Dr. Solander a salary or pension of 400*l.* a-year I believe to be wholly groundless: the sum would have been preposterous, especially considering that the Doctor enjoyed a considerable place in the British Museum.—The institution of the Copley Medal is said to be for "the experiments the most useful to the preservation of lives," whereas it is for the "best paper on experimental philosophy in the year."—The group called the "Society Islands" is said to derive its name from the "caractère doux et sociable des habitans," and Otaheite is said to be the chief. Now Otaheite is 150 miles distant, and belongs to the Friendly Islands; and Cook tells us himself that he named the others Society Islands, six in number, "on account of their being contiguous to each other."

OF THE
BOMBAY
BRANCH
OF THE

Engraved by J. Brown.

D' ALEMBERT.

London. Henry Colburn, 1846.

D'ALEMBERT.

THE pleasures of a purely scientific life have often been described; and they have been celebrated with very heartfelt envy by those whose vocations precluded or interrupted such enjoyments, as well as commended by those whose more fortunate lot gave them the experience of what they praised; but it may be doubted, if such representations can ever apply to any pursuits so justly as to the study of the mathematics. In other branches of science the student is dependent upon many circumstances over which he has little control. He must often rely on the reports of others for his facts; he must frequently commit to their agency much of his inquiries; his research may lead him to depend upon climate, or weather, or the qualities of matter, which he must take as he finds it; where all other things are auspicious, he may be without the means of making experiments, of placing nature in circumstances by which he would extort her secrets; add to all this the necessarily imperfect nature of inductive evidence, which always leaves it doubtful if one generalization of facts shall not be afterwards superseded by another, as exceptions arise to the rule first discovered. But the geometrician* relies en-

* It may be as well to adopt the expression always used on the Continent, to denote the cultivation of mathematical science:—"Ce

tirely on himself; he is absolute master of his materials; his whole investigations are conducted at his own good pleasure, and under his own absolute and undivided control. He seeks the aid of no assistant, requires the use of no apparatus, hardly wants any books; and with the fullest reliance on the perfect instruments of his operations, and on the altogether certain nature of his results, he is quite assured that the truths which he has found out, though they may lay the foundation of further discovery, can never by possibility be disproved, nor his reasonings upon them shaken, by all the progress that the science can make to the very end of time.

The life of the geometrician, then, may well be supposed an uninterrupted calm; and the gratification which he derives from his researches is of a pure and also of a lively kind, whether he contemplates the truths discovered by others, with the demonstrative evidence on which they rest, or carries the science further, and himself adds to the number of the interesting truths before known. He may be often stopped in his researches by the difficulties that beset his path; he may be frustrated in his attempts to discover relations depending on complicated data which he cannot unravel or reconcile; but his study is wholly independent of accident; his reliance is on his own powers; doubt and contestation and uncertainty he never can know; a stranger to all controversy, above all mystery, he possesses his mind in unruffled peace; bound by no authority, regardless of all consequences as of all opposi-

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grand géomètre," is a phrase now universally understood and applied to mathematicians of every description.

tion, he is entire master of his conclusions as of his operations; and feels even perfectly indifferent to the acceptance or rejection of his doctrines, because he confidently looks forward to their universal and immediate admission the moment they are comprehended.

It is to be further borne in mind, that from the labours of the geometrician are derived the most important assistance to the researches of other philosophers, and to the perfection of the most useful arts. This consideration resolves itself into two: one is the pleasure of contemplation, and consequently is an addition to the gratification of exactly the same kind, derived immediately from the contemplation of pure mathematical truth; much, indeed, of the mixed mathematics is also purely mathematical investigation, built upon premises derived from induction. The other gratification is of a wholly different description; it is connected merely with the promotion of arts subservient to the ordinary enjoyments of life. This is only a secondary and mixed use of science to the philosopher; the main pleasure bestowed by it, is the gratification which, by a law of our nature, we derive, from contemplating scientific truth when indulging in the general views which it gives, marking the unexpected relations of things seemingly unconnected, tracing the resemblance, perhaps identity, of things the most unlike, noting the diversity of those apparently similar. This is the true and primary object of scientific investigation. This it is which gives the pleasure of science to the mind. The secular benefits, so to speak, the practical uses derived from it, are wholly independent of this, and are only an incidental, adventitious, secondary advantage. I have fully explained this doctrine in

the Preliminary Discourse to the works of the Society for the Diffusion of Useful Knowledge, and in the Introduction to the 'Political Philosophy.' It never had been stated, as far as I know, before; but it rests on such irrefragable principles, that it has not since been called in question.*

It is an illustration of the happiness derived from mathematical studies, that they possess two qualities in the highest degrée, not perhaps unconnected with one another. They occupy the attention, entirely abstracting it from all other considerations; and they produce a calm agreeable temper of mind.

Their abstracting and absorbing power is very remarkable, and is known to all geometricians. Every one has found how much more swiftly time passes when spent in such investigations, than in any other occupation either of the senses or even of the mind. Sir Isaac Newton is related to have very frequently forgotten the season of meals, and left his food awaiting for hours his arrival from his study. A story is told of his being entirely shut up and disappearing, as it were eclipsed, and then shining forth grasping the great torch which he carried through the study of the heavens; he had invented the Fluxional Calculus. I know not if there be any foundation for the anecdote; but that he continually remained engaged with his researches through the night is certain,

* It gave me great pleasure to find it highly approved by my revered friend, Professor Stewart, who regarded it as indeed of more value and originality than I had considered myself. The outline of it had been read many years before (1798) in a literary society at Edinburgh, to which Lord Jeffrey, Dr. Brown, Mr. Horner, and others belonged. See Appendix to this Life.

and that he then took no keep of time is undeniable. It does not require the same depth of understanding to experience the effects of such pursuits in producing complete abstraction; every geometrician is aware of them in his own case. The sun goes down unperceived, and the night wanes afterwards till he again rises upon our labours.

They who have experienced an incurable wound in some prodigious mental affliction, have confessed, that nothing but mathematical researches could withdraw their attention from their situation. Instances we know of a habit of drinking being cured by the like means; an inveterate taste for play has within my own observation been found to give way before the revival of an early love of analytical studies. This is possibly a cause of the other tendency, which has been mentioned, the calming of the mind. We have seen in the life of Simson, how he would fly from the conflicts of metaphysical and theological science, to that of necessary truth, and how in those calm retreats he ever "found himself refreshed with rest."* Greater tranquillity is possessed by none than by geometricians. Even under severe privations this is observed. The greatest of them all, certainly the greatest after Newton, was an example. Euler lost his sight after a long expectation of this calamity, which he bore with perfectly equal mind; both in the dreadful prospect and the actual bereavement, his temper continued as cheerful as before, and his mind, fertile in resources of every kind, supplied the want of sight by ingenious mechanical devices, and by a memory more

* Vol. i., p. 477.

powerful even than before.* He furnishes an instance to another purpose. Thoughtless and superficial observers have charged this science with a tendency to render the feelings obtuse. Any pursuit of a very engrossing or absorbing kind may produce this temporary effect; and it has been supposed that men occasionally abstracted from other contemplations, are particularly dull of temper. But no one ever had more warm or kindly feelings than Euler, whose chief delight was in the cheerful society of his grand-children, to his last hour, and whose chief relaxation from his severer studies was found in teaching these little ones.

It has been alleged, and certainly has been somewhat found by experience to be true, that the habit of contemplating necessary truth and the familiarity with the

* My late learned and esteemed friend, Mr. Gough, of Kendal, was another example of studies being pursued under the same severe deprivation—but he had never known the advantages of sight, having lost his eyes when an infant, and never had any distinct recollection of light. He was an accomplished mathematician of the old school, and what is more singular, a most skilful botanist. His prodigious memory resembled Euler's, and the exquisite acuteness of his smell and touch supplied in a great measure the want of sight. He would describe surfaces as covered with undulations which to others appeared smooth and even polished. His ready sagacity in naming any plant submitted to his examination was truly wonderful. I had not only the pleasure of his acquaintance, but I have many particulars respecting his rare endowments, from another eminent mathematician, who unites the learning of the older with that of the modern school, my learned friend and neighbour, Mr. Slee, of Tirrel. A detailed account of Mr. Gough's case, by Mr. Slee and Professor Whewell (a pupil of his), would be most curious and instructive. Euler's memory was such, that he could repeat the Æneid, noting the words that begin and end each page. Mr. Gough also was an excellent classical scholar.

demonstrative evidence on which it rests, has a tendency to unfit the mind for accurately weighing the inferior kind of proof which alone the other sciences can obtain. Once finding that the certainty to which the geometrician is accustomed cannot be attained, he is apt either to reject all testimony, or to become credulous by confounding different degrees of evidence, regarding them all as nearly equal from their immeasurable inferiority to his own species of proof—much as great sovereigns confound together various ranks of common persons, on whom they look down as all belonging to a different species from their own. In this observation there is, no doubt, much of truth, but we must be careful not to extend its scope too far, so as that it should admit of no exceptions. The following life affords one of the most remarkable of these; as far as physical science went, Laplace afforded another; in several other branches he was, perhaps, no exception to the rule.*

The hold which their favourite studies have, and keep over geometricians is not the least remarkable proof of the gratification which they are calculated to afford.—I well know, to take one instance within my own observation, that my learned and esteemed friend, the present Lord Chancellor, a most successful student of the mathematics in his earlier years, reverted to the pursuits in

* It is said that when the Emperor asked him why he had left out the consideration of a Supreme Intelligence in his speculations, he answered that he conceived he could explain the phenomenon without that hypothesis. But when we look to his demonstration of the high improbability of the system having been formed without an intelligent cause, (above four millions of millions to one he proves it in his Calcul de Probabilité,) we cannot lend much faith to this Paris anecdote.

which he had so often found delight, long after he had held the highest offices and been engaged in the most dissimilar discussions. As late as 1838, when I was engaged in preparing my Analytical Review of the Principia, I found that, by an accidental coincidence, he was amusing his leisure with the calculus long intermitted; and I am sure that he could have furnished as correct and more elegant analytical demonstrations of the Newtonian theorems than I had the fortune to obtain in composing that work.

I have thought it a useful thing to consider the personal history with the scientific achievements of a very great geometrician, with a view to the illustration of these remarks—and I have chosen D'Alembert in preference to Euler or to Clairaut, the two other illustrious analysts of their age, because we have more ample materials for the study. Whatever of peace and comfort he enjoyed, D'Alembert owed to geometry, and confessed his obligations. Whatever he suffered from vexation of any sort, he could fairly charge upon the temporary interruption of his mathematical pursuits. In both portions of his history, therefore, it is likely to prove instructive, and to enforce the doctrine which I have laid down.

Jean le Rond d'Alembert was born on the 17th of Nov., 1717, being a foundling exposed near the church of St. Jean le Rond in Paris, and thus called by the name of the parish, as is usual in most countries. The commissary of the district, before whom the infant was carried, perceiving its feeble and almost dying condition, instead of sending it to the hospital gave the charge to the wife of a poor but honest glazier in the neighbourhood, living in the Rue Michel-le-Comte, for he was ac-

quainted with the good woman's respectability. In a few days the father, M. Destouches, commissary of artillery, came forward to own the child, and made provision for its support. The general belief is, that the exposition had been concerted with the police. But if so, a very needless risk was unaccountably incurred by exposing so tender an infant in a winter's night, when the parties might have sent it at once to the place where it was destined to be brought up. It is more likely that the mother, afraid of the discovery, if not of the burthen to be thrown upon her, caused the exposure before the father was apprized of the birth having happened, and that as soon as he knew of what had been done, he hastened to send after the person who had been entrusted with the charge. The mother was an unmarried lady, sister to Cardinal Tencin, Archbishop of Lyons, and she was afterwards well known in the circles of Paris as a person of rare talents and accomplishments. Marmontel, in his Memoirs, calls her Madame de Tencin, she having probably in her old age passed by that name; and he relates some of her sayings, of which one is singular in relation to the life of her celebrated son. "Woe to him," she said, "who depends for his subsistence on his pen! The shoemaker is secure of his wages; the bookmaker is not secure of anything." She was wont also to give the result of her experience of men, by recommending persons who lacked friends to prefer choosing them among women, as they are far more zealous to serve those they wish well to; but then, she added, "You must be their friend, and not their lover." She was the author of a novel, 'Les Mémoires du Comte de Cominges,' of which a good judge, Baron Grimm, says, "Il est en possession

de faire pleurer." After giving an account of the plot, he adds, "Il a toujours conservé beaucoup de réputation;" and he adds, "Il est de feu Mme. Tencin, sœur du Cardinal de ce nom; cette femme célèbre de plus d'une manière."* This celebrated person was the centre of a distinguished circle of society remarkable for wit, talents, and accomplishments, and after her death Mme. Geoffrin succeeded to her post.

The young D'Alembert, who probably took his name from his nurse, was sent at the age of twelve to the college of the Quatre Nations, where the professors, at that time of warm controversy, belonged to the Jansenist party; and observing the early appearance of genius in their young pupil, they took pains to imbue him with a taste for polemical subjects. In the first year of his studies in philosophy he had written an able and learned commentary of St. Paul's Epistle to the Romans, and as he showed a general capacity for science, the worthy enemies of the Jesuits, delighted to find that all profound learning was not engrossed by that body, cherished a hope that a new Pascal had been given to them for renewing their victories over their learned and subtle adversaries. It was with this view that they made him betimes study the mathematics, in which Pascal had so greatly and so early excelled; but they had to deal with a less docile subject than the Port-Royal had formerly found in young Blaise, for they soon perceived that it was in vain to make him quit his figures and his calculations and take to the divinity of the schools; and all their descriptions of the tendency which such studies had

* Corr., iv. 276.

to "dry up the heart"* failed to make him abandon what had taken so strong a hold of his whole mind.

When he left the college he showed the first remarkable instance of that kind and even tender disposition which distinguished him through life, and is another example to rescue the geometrician's pursuits from the reproach of hardening the heart. He found himself solitary in the world, without any kindred that acknowledged him, and he reverted to her whose care had reared and comforted his earlier years; he took refuge in the humble dwelling of his nurse, feeling, as he afterwards used to say, that the small income which alone he possessed, a pension of less than fifty pounds settled upon him by his father, would tend to increase somewhat the comforts of the poor people with whom he should board. In that lowly dwelling, a single confined room of which he occupied as his bed-room and his study, he established himself, living with the family and faring as they fared. Here he remained happy and contented for forty years, that is, until his health compelled him to change his abode, when the age of the good woman would not permit her to accompany him. When her husband died she was ill-treated by her grandchildren, who were stripping her of her little property and reducing her to great distress. "Laissez," said D'Alembert, "Laissez tout emporter par ces indignes.—Je ne vous abandonnerai point." Nor did he; he provided for all her wants, and as long as she lived he visited her twice a week, to satisfy himself by his

* These good fathers did not quite use the language they had employed to turn away Fenelon from "se laisser ensorceler par les attraits diaboliques de la géometrie." Certainly it is a proof of the evil one's ubiquity that we should find him lurking in this of all places.

own observation that nothing was wanting of care and attention to secure her comforts. When he became famous his mother's vanity led her to desire his intimacy, a step which natural affection had not suggested. Discovering to him the secret of his birth, she would have had him come and live with her. But he plainly said he regarded the nurse as his mother, and only saw a step-mother in Mme. Tencin.*

In this obscure retreat he devoted himself to his daily pursuits. Such books of mathematics as he could purchase he bought; others he was obliged to consult at the public libraries. From the very small scale of his library, and from the degree to which in his education and his subsequent studies he was left to himself, it happened that he was constantly making what seemed to him discoveries, and as constantly finding in some book, which he had not before been able to consult, that he had been anticipated. He drew from hence a very inaccurate inference; he supposed that nature had refused him the gift of original genius, and that he must rest satisfied with studying what others had discovered. But this gave him no pain; the gratification of investigating mathematical truth was all he desired, and with tasting that in his studies he was abundantly contented, regarding the glory of first making the step a very subordinate consideration, and esteeming the pleasure of the

* "Que me dites-vous là, madame?" he exclaimed; "Ah! vous n'etes qu'une marâtre! C'est la vitrière qui est ma mère." This touching anecdote is differently related by some, as Grimm in his 'Correspondence.' They report the interview as having taken place in presence of the old nurse; that D'Alembert exclaimed, "Ma mère! Ah! la voilà!—Je ne connais point d'autre." And therewithal fell upon her neck and bathed it in his tears.

contemplation a sufficient reward of his labour. This most interesting circumstance was related by himself to M. Condorcet, a profound and accomplished geometrician, who enjoyed his entire confidence, and succeeded him in the Academy.

While, however, his time thus passed in tranquil enjoyment, the very moderate income which he possessed rendered it advisable that he should seek for some means of increasing it and rendering himself independent, as well as helping more actively those he cared for. He was advised to study the law, and in the law he took his degrees. But nothing could less suit his taste than this study, and he changed it for that of medicine.

Finding that his passion for the mathematics interfered with this pursuit, he adopted the singular expedient of sending his books to a friend's house, that he might keep temptation out of his way. The resolution was, that he should not be allowed to have them again until he had taken his Doctor's degree. For some time this arrangement succeeded; but, his mind hankering after the forbidden scene, he would be ever haunted with the vision of some quantity, some function whose exact exponents had escaped him, some formula of which he could not recal the solution; he would then get back a volume, and thus one by one the whole of his little stock of precious learning returned into his possession, while the title of Doctor, the quantity, the arbitrary function M.D., remained without any approximation. He then fairly gave up the struggle, and devoted his life to geometrical pursuits.

The account which he always gave of his following years was one glowing with the recollection of the

purest happiness; and he was fond of dwelling upon all its details. Perfectly tranquil, without a thought of wealth or power or distinction, his whole enjoyments of an intellectual cast, his existence was as entirely that of a philosopher as ever fell to the lot of any one in ancient or in modern days.—"I awoke," he would say, "every morning to look back, with a feeling of gladness in my heart, on the investigation which I had begun over-night, and exulting in the prospect of continuing it to the result as soon as I rose. When I stopt my operations for a few moments to rest myself, I used to look forward to the evening when I should go to the theatre and enjoy another kind of treat, but also aware that between the acts I should be thinking on the greater treat my next morning's work was to afford me."—It was at this period of his life, at once glorious and happy, though still passed in obscurity, that the good old woman whom he loved as a mother, and who doated on him as a son, would say when any one told her of the great renown he was preparing for his name, "Oh, you will never be any thing better than a philosopher. And what's a philosopher? A foolish body who wearies his life out to be spoken of after he's dead."

His studies, however, as might well be expected, soon proved eminently successful. In 1739 he presented to the Academy of Sciences a paper containing some important corrections of errors into which Père Reynau had fallen in his treatise "Analyse Démontrée;" these errors D'Alembert had discovered when studying the book in order to learn the calculus, and they related to the integrals of binomials. This memoir gave a most favourable impression of his capacity to the eminent men who

at that time formed the mathematical portion of this illustrious body, Mairan, Cassini, Camus, Fouchy, above all Clairaut, then in the meridian of his great and just renown. The young analyst became their acquaintance first, then their friend. In 1741 he was admitted into the Society, at the early age of twenty-four. Excepting Clairaut, who for the maturity of his extraordinary faculties at an early age is an exception to all rules, no one had ever been an Academician so young. Clairaut had by Royal Ordinance, dispensing with the rule that required the age of twenty complete, been admitted an Adjoint at eighteen, and an Associate at twenty; but at twelve he had presented a memoir upon an important analytical subject, and at the same early age he had made some progress in his greatest work, the 'Courbes à double Courbure,' which was nearly completed at thirteen, and at sixteen was actually published.*

In 1743, two years after D'Alembert entered the Academy, appeared his 'Traité de Dynamique,' which at once placed him in the highest rank of geometricians. The theory is deduced with perfect precision, and with as great clearness and simplicity as the subject allows, from a principle which he first laid down and explained, though it be deducible from the equality of action and re-action, a physical rather than a mathematical truth, and derived from universal induction, not from abstract reasoning à priori.

The Principle is this. ('Dyn.' pt. 2. ch. i.) If there

* It would certainly have been published in 1725, before he was fourteen years old, but for a violent head-ache which his labours brought on, and which obliged him to give up writing. When his first paper was read at the Academy, the good Father Reynau burst into tears of joy at so marvellous a performance.

are several bodies acting on each other, as by being connected through inflexible rods, or by mutual attraction, or in any other way that may be conceived; suppose an external force is impressed upon these bodies, they will move not in the direction of that force as they would were they all unconnected and free, but in another direction; then the force acting on the bodies may be decomposed into two, one acting in the direction which they actually take, or moving the bodies without at all interfering with their mutual action, the other in such direction as that the forces destroy each other, and are wholly extinguished; being such, that if none other had been impressed upon the system, it would have remained at rest.* This principle reduces all the problems of dynamics to statical problems, and is of great fertility, as well as of admirable service in both assisting our investigations and simplifying them. It is, indeed, deducible from the simplest principles, and especially from the equality of action and re-action; but though any one might naturally enough have thus hit upon it, how vast a distance lies between the mere principle and its application to such problems, for example, as to find the locus or

* Lagrange's statement of the principle is the most concise, but I question if it is the clearest, of all that have been given. "If there be impressed upon several bodies, motions which they are compelled to change by their mutual actions, we may regard these motions as composed of the motions which the bodies will actually have, and of other motions which are destroyed; from whence it follows, that the bodies, if animated by those motions only, must be in equilibrio." ('Méc. An.' vol. i. p. 239, Ed. 1811.) It is not easy to give a general statement of the principle, and I am by no means wedded to the one given in the text. A learned friend has communicated one which the reader will find in Appendix II., together with a statement, by another excellent geometrician, of the real benefit derived from the Principle.

velocity of a body sliding or moving freely along a revolving rod, at the extremity of which rod the body moves round in a given plane—a locus which the calculus founded on the Principle shews to be in certain cases the logarithmic spiral.*

No one can doubt that the Principle of D'Alembert was involved in many of the solutions of dynamical problems before given. But then each solution rested on its own grounds, and these varied with the different cases; their demonstrations were not traced to and connected with one fundamental principle. He alone and first established this connexion, and extended the Principle over the whole field of dynamical inquiry.

The 'Traité' contains, further, (part 1. ch. ii.), a new demonstration of the parallelogram of forces. The reason

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* The general equation is $d^2 y = \frac{y\, d\, x^2}{a^2} + \frac{2\, \mathrm{D}\, y\, d\, y^2}{\mathrm{A}\, a^2 + \mathrm{D}\, y^2}$ in which y is the distance of the moving body D from the fixed point, or the length of the rod, at the end of which is the body A, describing an arch of a circle, and x that arch. The velocity of D is likewise found in terms of the same quantity.

I have freely admitted that the principle of D'Alembert flows from the equality of action and re-action; but nothing can be more incorrect than the remark made by a learned critic, ('Quarterly Review,' vol. v. p. 345,) that "this boasted principle is little more than Newton's third law of motion modified so as to suit the algebraical method of investigating propositions;" on which is grounded a complaint that the French, while praising D'Alembert, never mention Newton, the real author of the principle. The third law of motion was assuredly no discovery of Sir I. Newton; and as certainly the praise of the step made was due to D'Alembert, unless indeed Bernouilli, and still more Fontaine, in some sort anticipated him, probably without his being aware of it. The critic to whom I allude is well founded in urging the like complaints against the French chemists for omitting all mention of Black.

of the author's preference of this over the common demonstration, is not at all satisfactory. His proof consists in supposing the body to move on a plane sliding in two grooves parallel to one side of the parallelogram, and at the same time carried along in the direction of the other side. This is not one whit more strict and rigorous than the ordinary supposition of the body moving along a ruler parallel to one side, while the ruler at the same time moves along a line parallel to the other side. Indeed I should rather prefer this demonstration to D'Alembert's.

The 'Traité de Dynamique' appeared in 1743, and in the following year its fundamental principle was applied by the author to the important and difficult subject of the equilibrium, and motion of fluids, the portion of the 'Principia' which its illustrious author had left in its least perfect state. Pressed by the difficulty, of the inquiry which is one of the most important in Hydrodynamics, the motion of a fluid through an orifice in a given vessel, and despairing of the data affording the means of a strict and direct solution, Newton had recourse to assumptions marked by the most refined ingenuity, but admitted to be gratuitous and to be unauthorized by the facts. The celebrated Cataract is of this description. He supposes ('Principia,' lib. ii. prop. 36,) that a body of ice shaped like the vessel, comes in contact with the upper surface of the liquid and melts immediately on touching it, so as to keep the level of the fluid always the same, and that a cataract is thus formed, of which the upper surface is that of the fluid, and the lower that of the orifice. His first investigation assumed the issuing column to be cylindrical, but he afterwards found that the lateral pressure and motion gave it the form of a

truncated cone which he called a vein; and his correction of the former result was a matter of much controversy among mathematicians. Daniel Bernouilli at first maintained it to be erroneous against Riccati and others, but he afterwards acquiesced in Newton's view. He however always resisted the hypothesis of the cataract, as indeed did most other inquirers. Newton's assumptions, in other parts of this very difficult inquiry, have been deemed liable to the same objections; as where he leaves the purely speculative hypothesis of perfectly uncompressed and distinct particles, and treats of the interior and minute portions of fluids, as similar to those which we know. (Lib. ii. prop. 37, 38, 39.) It must, however, be admitted as D'Alembert has observed, ('Encyc.' v. 889, and 'Résistance des Fluides,' xvii.) that "those who attacked the Newtonian theory on this subject had no greater success than its illustrious author; some having, after resorting to hypotheses which the experiments refuted, abandoned their doctrines as equally unsatisfactory, and others confessing their systems groundless, and substituting calculations for principles."

Such was the state of the science when D'Alembert happily applied his Dynamical principle to the pressure and motion of fluids, and found that it served excellently for a guide, both in regard to non-elastic and elastic fluids. In fact the particles of these being related to one another by a cohesion which prevents them not from obeying an external impulse, it is manifest that the principle may be applied. Thus, if a fluid contained in a vessel of any shape be conceived divided into layers perpendicular to the direction of its motion, and if v represent generally the velocity of the layers of fluid at any

instant, and $d\,v$ the small increment of that velocity, which may be either positive or negative, and will be different for the different layers, $v \pm vo$ will express the velocity of each layer as it takes the place of that immediately below it; then if a velocity $\mp dv$ alone were communicated to each layer, the fluid would remain at rest. ('Traité de Fluides,' Liv. ii. ch. 1. Theor. 2.) Thus the velocity of each part of the layer being taken in the vertical direction is the same, and this velocity being that of the whole layer itself, must be inversely as its horizontal section, in order that its motion may not interfere with that of the other layers, and may not disturb the equilibrium. This, then, is precisely the general dynamical principle already explained applied to the motion of fluids, and it is impossible to deny that the author is thus enabled to demonstrate directly many propositions which had never before been satisfactorily investigated. It is equally undeniable that much remained after all his efforts incapable of a complete solution, partly owing to the inherent difficulties of the subject from our ignorance of the internal structure and motions of fluids, and partly owing to the imperfect state in which all our progress in analytical science still has left us, the differential equations to which our inquiries lead having, in very many cases, been found to resist all the resources of the integral calculus.

This remark applies with still greater force to his next work. In 1752, he published his Essay on a new theory of the Resistance of Fluids. The great merit of this admirable work is that it makes no assumption, save one to which none can object, because it is involved in every view which can well be taken of the nature of a fluid;

namely, that it is a body composed of very minute particles, separate from each other, and capable of free motion in all directions. He applies the general dynamical principle to the consideration of resistance in all its views and relations, and he applies the calculus to the solution of the various problems with infinite skill. It is in this work that he makes the most use of that refinement in the integral calculus of which we shall presently have occasion to speak more at large, as having first been applied by D'Alembert to physical investigation, if it was not his own invention. But the interval between 1744 and 1752 was not passed without other important contributions to physical and analytical science. In 1746, he gave his Memoir on the general theory of Winds, which was crowned by the Royal Academy of Berlin. The foundation of this able and interesting inquiry is the influence of the sun and moon upon the atmosphere, the aërial tides, as it were, which the gravitation towards these bodies produces; for he dismisses all other causes of aërial currents as too little depending upon any definite operation, or too much depending upon various circumstances that furnish no precise data, to be capable of analytical investigation. The Memoir consists of three parts. In the *first* he calculates the oscillations caused by the two heavenly bodies supposing them at rest, or the earth at rest in respect of them. In the *second*, he investigates their operation on the supposition of their motion. In the *third*, he endeavours to trace the effects produced upon the oscillations by terrestrial objects. The paper is closed with remarks upon the effects of temperature. The whole inquiry is conducted with reference to the general dynamical principle which he had so hap-

pily applied to the equilibrium and pressure of fluids, in his first work upon that difficult subject.

The subject of fluids was, perhaps, the one which most occupied D'Alembert's attention, and for the greatest number of years. His 'Opuscula' contain several interesting tracts upon its various departments, especially the first and fifth volumes, which were published in 1761 and 1768 respectively. But above half the eighth volume relates to the same subject, and it appeared as late as 1780, so that this inquiry had retained its hold on his mind for a period of nearly forty years.*

We may further observe, that the extreme interest which he took in it seems to have made him somewhat susceptible, when he conceived others had not done justice to his labours in this favourite department of science. Not only is he anxious, perhaps beyond what is altogether beseeming the calm and disinterested

* The readers of D'Alembert's papers on these subjects will have real obligations to Bossut, if they read with D'Alembert that great didactic writer's admirable treatise, 'Hydrodynamique,' second edition. He was an intimate friend and, indeed, may be said to have been a pupil, of D'Alembert and of Condorcet. His 'Calcul Intégral et Différentiel,' is also a truly excellent and useful work. Of the four great elementary treatises on this subject, Lacroix's, Bougainville's, Cousin's, and Bossut's, the last appears to me the best; but I am aware of the high opinion which D'Alembert entertained of Bougainville's. He was accustomed to refer to Bossut those who applied to him for explanations of his writings, as Newton did to Demoivre.—Why, may it be permitted us respectfully to ask, why will so many mathematicians fancy it beneath them to write clearly, simply, and, as didactic matter should be written, intelligibly—and always proceeding from what is known and explained to what is not, without anticipation? Surely Bossut was as great a geometrician as themselves, and he condescended to write as if he were teaching and not commenting, alluding, or referring.

love of investigation, to secure the admission of his claims as the original discoverer; but we sometimes find him even querulous as to the remarks of others, and complaining of them for not rendering him justice. In the 'Opuscula,' tom. i., p. 158, we have not only an anxious statement of his having been the first to use the method employed in the 'Essai sur la Résistance des Fluides,' and adding, that "great geometricians had so much valued it as to apply it in their inquiries;" but he objects to their having maintained that his theory was capable of greater extension than he had given it, and observes that he had turned it to other inquiries which had escaped them. In the able and learned article Hydrodynamique, in the 'Dict. Encyc.,' vol. viii., p. 373, he attacks Euler for supposing, in his 'Mémoire Acad. de Berlin,' 1755, that D'Alembert's method in his Essai was not general; and he adds, "Il me semble que M. Euler auroit dû rendre plus de justice à mon travail sur ce sujet et convenir de l'utilité qu'il en avoit tirée." Assuredly if ever man was above all suspicion of either usurping upon others or overrating his own discoveries, it was this most illustrious geometrician, whose inherent richness of invention made him even blameably careless of his own claims to originality. No one can have contemplated the different periods of D'Alembert's life without being assured that such feelings of jealousy and irritation as appear in the passages just now cited, were not congenial to his nature and to his earlier habits, when his darling science maintained undisputed possession of his mind, excluded all anxiety save in the search after truth, and calmed every temporary ruffling of his composure. The dates these passages bear, of 1761 and 1765, long after his admission into the circle of Madame

du Deffand, and his participation in the labours and factions of the Encyclopædists, the Diderots, the Holbachs, the Voltaires, shew sufficiently that he had exchanged the peace of geometry for the troubled existence of côterie and party.

We ought, while on this subject, to add the just and judicious remark of Bossut on the circumstance of James Bernouilli having anticipated in some sort D'Alembert's method of treating dynamical problems: "That the latter seemed to prove, by the numerous and important applications which he had made of his Principle, that in all probability he owed the discovery of it solely to himself." ('Hydrodyn.' I., xv.)

In treating of Hydrodynamics D'Alembert had found the ordinary calculus insufficient, and was under the necessity of making an important addition to its processes and its powers, already so much extended by the great improvements which Euler had introduced. This was rendered still more necessary when, in 1746, he came to treat of the winds, and in the following year when he handled the very difficult subject of the vibration of cords, hitherto most imperfectly investigated by mathematicians.* In all these inquiries the differential equations which resulted from a geometrical examination of the conditions of any problem, proved to be of so difficult

* Taylor ('Methodus Incrementum') had solved the problem of the vibrating cord's movement, but upon three assumptions—that it departs very little from the axis or from a straight line, that all its points come to the axis at the same moment, and that it is of a uniform thickness in its whole length. D'Alembert's solution only requires the last and the first supposition, rejecting the second. The first, indeed, is near the truth, and it is absolutely necessary to render the problem soluble at all. The third has been rejected by both Euler and Daniel Bernouilli, in several cases investigated by them.

integration that they appeared to set at defiance the utmost resources of the calculus. When a close and rigorous inspection shewed no daylight, when experiments of substitution and transformation failed, the only resource which seemed to remain was finding factors which might, by multiplying each side of the equation, complete the differential, and so make it integrable either entirely, or by circular arches, or by logarithms, or by series. D'Alembert, in all probability, drew his new method of treating the subject from the consideration that, in the process of differentiation we successively assume one quantity only to be variable and the rest constant, and we differentiate with reference to that one variable; so that $x\,dy + y\,dx$ is the differential of xy, a rectangle, and $xy\,dz + xz\,dy + yz\,dx$ the differential of xyz, a parallelopiped, and so of second differences, d^2z being (when $z = x^m$) $= (m^2 - m)\,x^{m-2}\,dx^2 + m\,x^{m-1}\,d^2x$. He probably conceived from hence that by reversing the operation and partially integrating, that is, integrating as if one only of the variables were such, and the others were constant, he might succeed in going a certain length, and then discover the residue by supposing an unknown function of the variable which had been assumed constant, to be added, and afterwards ascertaining that function by attending to the other conditions of the question. This method is called that of *partial differences*. Lacroix justly observes that it would be more correct to say *partial differentials;* and a necessary part of it consisted of the *equations of con-*

D'Alembert's solution led to an equation of partial differences of this form $\left(\frac{d^2y}{dt^2}\right) = a^2\left(\frac{d^2y}{dx^2}\right)$ in which t is the time of the vibration, x and y the co-ordinates of the curve formed by the vibration.

ditions, which other geometricians unfolded more fully than the inventor of the calculus himself; that is to say, statements of the relation which must subsist between the variables or rather the differentials of these variables, in order that there may be a possibility of finding the integral by the method of partial differences. It appears that Fontaine,* a geometrician

* Euler had so high an opinion of Fontaine, that in 1751 he told Lalande, "If any unexpected discovery shall be made, I believe it will be Fontaine that will make it." (Montucla, iv., 77, note by Lalande.) His name is not even mentioned in the scientific Encyclopædias; nor does Professor Leslie, in his Dissertation to the 'Encyc. Brit.,' shew that he had ever heard of it. The delay of the Academy in publishing his papers is apparently suspected by Montucla as having resulted from some unfair feeling towards him. He was a person of the most philosophic habits, living always in the country, where he cultivated a small estate; and having had the misfortune to be involved in an oppressive litigation he appears to have abandoned scientific pursuits during the latter years of his life. (Mem., 1771.) We find him mentioned in some of the contemporary Memoirs, among the very first geometricians. Grimm always treats him as such, and he gives some anecdotes of him. "Fontaine vit à la campagne, et ne vient à Paris que rarement. Il passe auprès des connaisseurs pour le premier géomètre du royaume. Il met du génie dans ses ouvrages, et quand on le connait on n'est pas difficile à persuader sur ce point. C'est un homme d'un tour d'esprit très-piquant. Il réunit une finesse extrême à je ne sais quoi de niais." (Corr. ii., 287.) It must, however, be confessed, that Grimm writes on a subject he knew nothing of, having mixed error with truth. Thus he says of D'Alembert, "Sans avoir rien inventé, il passe pour mettre beaucoup d'élégance et de clarté dans ses ouvrages géométriques," p. 215; thus praising him for exactly that in which he is most deficient, and denying him the originality which was his great merit. Of Clairaut he elsewhere says: "Un très-grand géomètre, presque sur la ligne des Euler, des Fontaine, des Bernouilli, et des D'Alembert. Il avait moins de génie que Fontaine, plus de justesse et de sûreté et moins de pénétration que D'Alembert. Ce dernier a perdu à son mort un rival qui le tenait sans cesse en haleine, et c'est une grande perte." (Corr. iv., 456.) This latter passage is very just in all respects.

of the greatest genius, gave the earliest intimation on this important subject; for the function of one or both variables which is multiplied by $d\,x$ being called M, and that function of one or both which is multiplied by $d\,y$ being called N, the canon or criterion of integrability is that

$$\frac{d\,\mathrm{M}}{d\,y} = \frac{d\,\mathrm{N}}{d\,x}$$

and we certainly find this clearly given in a paper of Fontaine's read before the Academy, 19th Nov., 1738. It is the third theorem of that paper. Clairaut laid down the same rule in a Memoir which he presented in 1739; but he admits in that Memoir his having seen Fontaine's paper. He expounds the subject more largely in his far fuller and far abler paper of 1740; and there he says that Fontaine showed his theorem to the Academy the day this second paper of Clairaut's was read—erroneously, for Fontaine had shown it in November, 1738; and had said that it was then new at Paris, and was sent from thence to Euler and Bernouilli. The probability is, that Clairaut had discovered it independent of Fontaine, as Euler certainly had done; and both of them handled it much more successfully than Fontaine. D'Alembert, in his demonstrations, 1769, of the theorems on the integral calculus, given by him without any demonstration in the volume for 1767, and in the scholium to the twenty-first theorem, affirms distinctly that he had communicated to Clairaut a portion of the demonstration, forming a corollary to the proposition, and from which he says that Clairaut derived his equation of condition to differentials involving three variables. It is possible; but as this never was mentioned in Clairaut's lifetime, although there existed a sharp controversy between these two

great men on other matters, and especially as the equation of conditions respecting two variables might very easily have led to the train of reasoning by which this extension of the criterion was found out, the probability is, that Clairaut's discovery was in all respects his own.

The extreme importance of this criterion to the method of partial differences, only invented, or at least applied, some years later, is obvious. Take a simple case in a differential equation of the first order,—

$$dz = (2axy - y^3)\,dx + (ax^2 - 3xy^2)\,dy$$

where $\mathrm{M} = 2axy - y^3$, $\mathrm{N} = ax^2 - 3xy^2$

For the criterion $\dfrac{d\mathrm{M}}{dy} = 2ax - 3y^2$

$$\frac{d\mathrm{N}}{dy} = 2ax - 3y^2$$

gives us $$\frac{d\mathrm{M}}{dy} = \frac{d\mathrm{N}}{dx},$$

which shows that the equation $\mathrm{M}\,dx + \mathrm{N}\,dy$ is a complete differential, and may be integrated. Thus integrate $(ax^2 - 3xy^2)\,dy$, as if x were constant, and add X (a function of x, or a constant), as necessary to complete the integral, and we have

$$ax^2y - xy^3 + \mathrm{X} = \mathrm{Z};$$

now differentiate, supposing y constant, and we have

$$\frac{dz}{dx} = (2axy - y^3) + \frac{d\mathrm{X}}{dx}$$

(because of the criterion) $= 2axy - y^3$,

consequently $\dfrac{d\mathrm{X}}{dx} = o$, and $\mathrm{X} = \mathrm{C}$, a constant.

Accordingly, $z = ax^2y - xy^3 + \mathrm{C}$;

and so it is, for differentiating in the ordinary way, x and y being both variable, we have

$$dz = 2axy\,dx + ax^2\,dy - 3xy^2\,dy - y^3\,dx$$
$$= (2axy - y^3)\,dx + (ax^2 - 3xy^2)\,dy$$

which was the equation given to be integrated.

To take another instance in which $\frac{dX}{dx}$, the differential coefficient of the quantity added is not $= o$ or X constant. Let

$$dz = y^2\,dx + 3x^2\,dx + 2xy\,dy$$

in which, by inspection, the solution is easy—

$$z = xy^2 + x^3 + C$$

Here $\quad M = y^2 + 3x^2 \qquad N = 2xy$

and $\quad \frac{dM}{dy} = 2y = \frac{dN}{dx}$

So $z = xy^2 + X$, and differentiating with respect to x

$$\frac{dz}{dx} = y^2 + \frac{dX}{dx} = y^2 + 3x^2$$

Hence $\quad X = x^3 + C$

and $\quad z = xy^2 + x^3 + C,$

the integral of the equation proposed.

It must, however, be observed of the criterion, that an equation may be integrable which does not answer the condition

$$\frac{dM}{dy} = \frac{dN}{dx}.$$

It may be possible to separate the variables and obtain $X\,dx = Y\,dy$, as by transformation; or to find a factor, which, multiplying the equation, shall render it

integrable, by bringing it within that condition. The latter process is the most hopeful; and it is generally affirmed that such a factor, F, may always be found for every equation of the first order involving only two variables.* However, this is only true in theory: we cannot resolve the general equation by any such means; for that gives us

$$\mathrm{F}.\left(\frac{d\,\mathrm{M}}{dy}-\frac{d\,\mathrm{N}}{dx}\right)=\mathrm{N}.\frac{d\,\mathrm{F}}{dx}-\mathrm{M}\frac{d\,\mathrm{F}}{dy}$$

an expression as impossible to disentangle, it may safely be asserted, as any for the resolution of which its aid might be wanted. It is only in a few instances of the values of these functions (M and N) that we can succeed in finding F.

It is here to be observed, that not only Fontaine had, apparently, first of all the geometricians, given the criterion of integrability, but he had also given the notation which was afterwards adopted for the calculus of Partial Differences. ϕ being a function of two variables, x and y, he makes $\frac{d\,\phi}{dx}$ stand for the differential coefficient of ϕ when x only varies, and $\frac{d\,\phi}{dy}$ for the same differential coefficient when y only varies. Hence he takes $\frac{d\,\phi}{dx}\times dx$, not, as in the ordinary notation it would be, $=d\,\phi$, the complete differential of ϕ; whereas that differential would, in this solution, be

$$\frac{d\,\phi}{dx}\times dx+\frac{d\,\phi}{dy}\times dy$$

Thus if $\phi = xy^2$, its complete dif. $d\phi = 2yx\,dy + y^2dx$,

but $$\frac{d\phi}{dx} = y^2$$

It is quite clear, therefore, that Fontaine gave the notation of this calculus.

But D'Alembert had been anticipated in the method itself, as well as in the notation or algorithm; for Euler, in a paper entitled 'Investigatio functionum ex datâ differentialium conditione,' dated 1734,* integrated an equation of partial differences; and he had afterwards forgotten his own new calculus, so entirely as to believe that it was first applied by D'Alembert in 1744. So great were the intellectual riches of the first of analysts, that he could thus afford to throw away the invention of a new and most powerful calculus! A germ of the same method is plainly to be traced in Nicolas Bernouilli's paper† in the 'Acta Eruditorum' for 1720, on Orthogonal Trajectories.‡

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* 'Petersburgh Memoirs,' Vol. VII.

† See, too, the paper in John Bernouilli's Works, Vol. II., p. 442, where he investigates the transformation of the differential equation $dx = P\,dy$ (P being a function of a, x, and y) into one, in which a also is variable.

‡ While upon the subject of Partial Differences, we must naturally feel some disappointment that this important subject has not been treated more systematically, especially by later analysts. Some of these, indeed, seem to have formed an extremely vague notion of its nature. Thus Professor Leslie, in his declamatory and inaccurate Dissertation on the progress of mathematical and physical science, ('Encyc. Brit.,' I., 600,) gives a definition of this calculus, which is really that of the fluxional or differential calculus in general, and which, though authorized by an inaccurate passage in Bossut's excellent work, ('Integ. and Dif. Cal.,' II., 351,) could never have been adopted by any one who did more than copy after another.

While mentioning Fontaine's great and original genius for analytical investigations, we must not overlook his having apparently come very near the Calculus of Variations. In a paper read at the Academy, 17th February, 1734, we find a passage that certainly looks towards that calculus, and shews that he used a new algorithm as requisite for conducting his operation:—"J'ai été obligé," he says, "de faire varier les mêmes lignes en deux manières differentes. Il a fallu designer leurs variations differemment." "J'ai marqué les unes comme les géomètres Anglais par des fluxions (points); les autres par des differences ($d\,x$) à nôtre manière; de sorte qu'ici $d\,x$ ne sera pas la même chose que $\dot{x}$, $d\,\dot{x}$ que $\ddot{x}$," (p. 18.) "Il peut y avoir," he afterwards adds, "des problèmes qui dependroient de cette méthode fluxio-differentielle."

Nothing that has now been said can, in any manner, detract from the renown justly acquired by D'Alembert and Lagrange as the first who fully expounded the two great additions to the Differential Calculus, first applied them systematically to the investigation of physical as well as mathematical questions, and therefore may truly

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He afterwards (p. 606) supposes Clairaut's addition to the inverse square of the distance $\left(\frac{1}{d^3} + \frac{1}{d^4}\right)$ to have been adding what he calls "a small portion of the inverse cube joined to the ordinary term of the inverse square;" and he considers, most unaccountably, that this is not a function of the distance at all. His account of the calculus of variations is equally vague; and the example unhappily chosen is one in which the relations of the co-ordinates do not change, but only the amount of the parameter (Ib., p. 600.) I must also most respectfully enter my protest here, once more, against mathematicians writing metaphorically and poetically, as this learned Professor does in almost every sentence.

be said to have first taught the use of them as instruments of research to geometricians.*

In the year 1746 the Academy of France proposed, as the subject of its annual prize essay for 1748, the disturbances produced by Jupiter and Saturn mutually on each other's orbits. Euler's Memoir gained the prize; and it contains the solution of the famous Problem of the Three Bodies—namely, to find the path which one of those bodies describes round another when all three attract each other with forces varying inversely as the squares of their distances, their velocities and masses being given, and their directions in the tangents of their orbits.† This, which applies to the case of the Moon, would be resolved were we in possession of the solution for the case of Jupiter and Saturn, which, instead of revolving round each other, revolve round the third body. Euler's investigation did not appear quite satisfactory; and, in 1750 the same subject was announced for 1752, when he again carried off the prize by a paper exhausting the subject, and affording such an approximation to the solution as the utmost resources of the integral calculus can give. But while we admit, because its illustrious author himself admitted, the justice of the Academy's views respecting his first solution, we must

* There was nothing in the observation of Fontaine that can be termed an anticipation of Lagrange, though D'Alembert, unknown to himself, had certainly been anticipated by Euler.

† The problem of the Three Bodies, properly speaking, is more general; but, in common parlance, it is confined to the particular case of gravitation, and indeed of the sun, earth, and moon, as three bodies attracting each other by the law of gravitation, and one of which is incomparably larger than the other two.

never forget the extraordinary genius displayed in it. He did not communicate the whole, or even the more essential portion of his investigation, but he afterwards gave it in a paper to the Berlin Academy in 1749, and in another to the Petersburgh Academy in 1750, the first of these containing our earliest view of the variation of arbitrary constants in differential equations, and the development of the radical which expresses the relative distance between two planets in a series of sines and co-sines of angles multiples of the elongation, a series so artistly framed that every three consecutive terms are related together in such a manner as to give the whole series from a determination of the first two terms. Clairaut appears to have turned his attention to the same problem some time before Euler. In 1743, he gave a Memoir on the Moon's Orbit, according to the Newtonian theory of gravitation, and it appears in the volume for that year; but this paper must be admitted to have been a somewhat slight performance for so consummate a geometrician. It rather evaded the difficulties of the problem than surmounted by encountering them; for he assumed the orbit of the moon to differ imperceptibly from a circle; and his differential equation could not have been integrated without this supposition. Now, the only assumptions which had been conceived permissible were the incomparably greater mass of one body than those of the two others,* the nearly equal

* In truth, the mass of the sun being 355,000 times that of the earth, and that of the earth being between sixty-eight and sixty-nine times that of the moon, the mass of the sun is twenty-five millions of times greater than that of the moon.

distance of that body from each of the two others, and the almost elliptical path of the one whose orbit was sought, leaving its deviation from that path alone to be sought after. Accordingly, the paper of 1743 did not satisfy its illustrious author, who, in 1747, produced another worthy of the subject and of himself. This was read 15th November, 1747, but part of it had been read in August. He asserts positively in a note ('Mém.,' 1745, p. 335,) that though Euler's first paper had been sent in the same year, he had never seen it till after his solution was obtained; therefore, Lalande had no right to state in his note to the very bad edition of Montucla which he published, wholly incapable of the task, that Fontaine always said that Clairaut was enabled to obtain his solution by the paper of Euler, (Vol. iv. p. 66.)

At the time that Clairaut was engaged in this investigation, D'Alembert, unknown to him, was working upon the same subject. Their papers were presented on the same day, and Clairaut's solution was unknown to D'Alembert; but so neither could D'Alembert's solution have been known to Clairaut, because the paper is general on the problem, and the section applicable to the moon's orbit was added after the rest was first read, and was never read at all to the Academy. Nothing, therefore, can be more clear than that neither of these great geometricians borrowed from the other, or from Euler. It is just possible that Euler in his complete solution of 1752 might have had the advantage of their previous ones; but as it clearly flowed from his earlier paper, there is no doubt also of his entire originality. Nevertheless, when D'Alembert's name became mixed up with the party proceedings among the literary and

fashionable circles of Paris, there were not wanting those who insisted that the whole fame of this great inquiry belonged to Clairaut; and it is painful to reflect on the needless uneasiness which such insinuations gave to D'Alembert. We shall recur to the subject afterwards, and now must continue the history of this problem.

Thus, in investigating this famous "Problem of the Three Bodies," all the three geometricians, without communicating together, took the same general course in the field, like three navigators of consummate skill and most practised experience tracing the pathless ocean, unseen by one another, and each trusting to his seamanship, his astronomical observations, and his time-keeper, and all of them steering separately the same course. They were each led to three equations, which nearly resembled those obtained by the other two. Of the three equations the most important is—

$$\frac{d^2u}{dv^2} + u + \frac{T\frac{du}{dv} - P\,u}{u^2\left(u^2 + 2\int \frac{T}{u^2}\,dv\right)} = o$$

in which u is the reciprocal of the projection on the plane of the ecliptic of the moon's distance from the earth, v the moon's longitude with respect to the centre of gravity of the earth and moon, P and T the resultants respectively of all the forces acting on the moon parallel and perpendicular to $\frac{1}{u}$, and parallel to the plane of the ecliptic, h an arbitrary constant. P and T being complicated functions of the longitudes of the sun and moon, as well as of the eccentricities of their orbits

have to be developed for the further solution of the problem.

Now, it is a truly remarkable circumstance that the conclusion at which all these great men separately arrived was afterwards found to be erroneous. They made the revolving motion of the moon's apogee (or the revolution which the most distant part of her orbit makes in a certain time) half as much as the observations shew it to be; and in a revolution of the moon, 1° 30′ 43″, instead of 3° 2′ 32″ the observations giving about nine years for the period, which the revolution really takes, instead of eighteen. Clairaut first stated this apparent failure of the Newtonian theory, and as he had taken pains to make the investigation "avec toute l'exactitude qu'elle demandoit," ('Mém.' 1745, p. 336,) he was with great reluctance driven to conclude that the doctrine of gravitation failed to account for the progression of the apogee or revolution of the lunar orbit; and if so, as Euler justly observed, (Prix., tom. vii., 'Recherches sur Jupiter et Saturne,' p. 4,) we must have been entitled to call in question the operation of the same principle on all the other parts of the planetary system. Clairaut even went so far as to propose, in consequence of the supposed error, a modification of the law of gravitation; and that we should, instead of considering it as in the proportion of $\frac{1}{d^2}$, (d being the distance,) regard it as proportional partly to $\frac{1}{d^2}$, the inverse square, and partly to $\frac{1}{d^4}$, the inverse fourth power of the distance. But this suggestion was far from giving satisfaction even to those who admitted the failure of the theory. A controversy arose

between this great geometrician and a very unworthy antagonist, Buffon, who, on vague, metaphysical, and even declamatory grounds, persisted in shewing his ignorance of analysis, and his obstinate vanity; nor, though he was by accident, quite right, could any one give him the least credit for his good fortune. Clairaut answered him, and afterwards rejoined to his reply, with a courtesy which betokened entire civility and even respect for the person, with an infinitely low estimation of either his weight or his strength—quantities truly evanescent. At length it occurred to him that the process should be repeated, a course which he certainly must have taken at first had he not naturally enough been misled by the singular coincidence of both Euler and D'Alembert* having arrived at the same conclusion with himself. He found that he ought to have repeated his investigation of the differential equation to the radius, after obtaining, by a first investigation, the value of the third term above given in that equation—

$$\mathrm{T}\,\frac{\frac{du}{dv} - \&c.}{u^3\left(u^2 + \&c.\right.} \text{ (as above given.)}$$

This omission he now supplied, and he found that the result, when applied to the case, made the progression of the moon's apogee twice as quick as the former operation had given it, or nine years, agreeing with the actual observation. He deposited, in July, 1746, with the secretary

* Euler had stated it incidentally, as regarded the lunar apogee, in his prize memoir, in 1746, on Jupiter and Saturn, but he mentioned it more fully in a letter to Clairaut. ('Mém.' 1745, p. 353, note.)

of the Academy, as well as with Sir Martin Folkes, president of the Royal Society, a sealed paper containing the heads of his analysis, but delayed the publication of it until he should complete the whole to his satisfaction: a most praiseworthy caution, after the error that had been committed in the first instance. He announced, however, the result, and its confirming the Newtonian theory, in May of the same year; and added, that his reasoning was purely geometrical, and had no reference to vague topics, giving, at the same time, a conclusive exposition of Buffon's ignorance in his hot attack, which showed him to be wholly incapable of appreciating any part of the argument. In May, 1752, the Memoir itself was given to the Academy, and it appears in the volume for 1748.* It is entitled, "De l'Orbite de la Lune, en ne négligeant pas les quarrés des quantités de même ordre avec les forces perturbatrices;" which has misled many in their conception of the cause to which the error must be ascribed. But in the volume for 1748, p. 433, he leaves no doubt on that cause; for he states that having originally taken the radius vector r, (the reciprocal of u in our former equation,) $= \frac{k}{1 - \cos. m v}$, he now takes fully that reciprocal u or $\frac{k}{r} = 1 - e \cos. m v + \beta \cos. \frac{2 v}{n} - \gamma \cos. \left(\frac{2}{n} - m\right) v + \delta \cos. \left(\frac{2}{n} + m\right) v - \zeta \cos. \left(\frac{2}{n} - 2 m\right) v$, terms obtained by the first or trial integra-

* For an account of the irregular and irrational manner in which the Memoirs of the Academy were published, see 'Life of Lavoisier.' The inconvenience of it meets us everywhere.

tion, which he had fully explained in his first Memoir to be the more correct mode of proceeding, ('Mém.,' 1745, p. 352;) and the consequence of this is to give the multiplier, on which depends the progression of the apogee, a different value from what it was found to have in the former process. It is never to be forgotten that the original investigation was accurate as far as it went; but by further extending the approximation a more correct value of m was obtained, in consequence of which the expression for the motion of the apogee became double that which had been calculated before.

It should be observed, in closing the subject of the Problem of Three Bodies, that Euler no sooner heard of Clairaut's final discovery, than he confirmed it by his own investigation of the subject, as did D'Alembert. But in the mean time Matthew Stuart, (Life of Simson, vol. i.) had undertaken to assail this question by the mere help of the ancient geometry, and had marvellously succeeded in reconciling the Newtonian theory with observation. Father Walmisley, a young English priest of the Benedictine order, also gave an analytical solution of the difficulty in 1749.

The other great problem, the investigation of which occupied D'Alembert, was the Precession of the equinoxes and the Nutation of the earth's axis, according to the theory of gravitation. Sir Isaac Newton, in the xxxix. prop. of the third book, had given an indirect solution of the problem concerning the Precession; the Nutation had only been by his unrivalled sagacity conjectured à priori, and was proved by the observations of Bradley. The solution of the Precession had not proved satisfactory; and objections were taken to the hypotheses

on which it rested, that the accumulation of matter at the equator might be regarded as a belt of moons, that its movement might be reckoned in the proportion of its mass to that of the earth, and that the proportion of the terrestrial axes is that of 229 to 230; that the earth is homogeneous, and that the action of the sun and moon *ad mare movendum*, are as one to four and a half nearly, and in the same rate *ad equinoctia movenda*. Certainly the three last suppositions have since Newton's time been displaced by more accurate observations; the axes being found, to be as 298 to 299, the earth not homogeneous, and the actions of the sun and moon on the tides more nearly as one to three. But it has often been observed and truly observed, that when D'Alembert came to discuss the subject, it would have been more becoming in him to assign his reasons for denying the other hypothesis on which the Newtonian investigation rests, than simply to have pronounced it groundless. However, it is certain that he first gave a direct and satisfactory solution of this great problem; and that he investigated the Nutation with perfect success, showing it to be such that if it subsisted alone, (*i. e.*, if there were no precessional motion) the pole of the equinoctial would described among the stars a minute ellipse, having its longer axis about 18″ and its shorter about 13″, the longer being directed towards the pole of the ecliptic, and the shorter of course at right angles to it. He also discovered in his investigations that the Precession is itself subject to a variation, being in a revolution of the nodes, sometimes accelerated, sometimes retarded, according to a law which he discovered, giving the equation of correction. It was in 1749 that he gave this admirable investigation; and in 1755

he followed it up with another first attempted by him, namely, the variation which might occur to the former results, if the earth, instead of being a sphere oblate at the poles, were an elliptic spheroid, whose axes were different. He added an investigation of the Precession on the supposition of the form being any other curve approaching the circle. This is an investigation of as great difficulty perhaps as ever engaged the attention of analysts. It remains to add that Euler, in 1750, entered on the same inquiries concerning Precession and Nutation; and with his wonted candour, he declared that he had read D'Alembert's memoir before he began the investigation.

The only other works of D'Alembert which it is necessary to mention, are his three papers on the integral calculus. Of these one, in the Berlin Memoirs, is replete with improvements extremely important in the methods of integration, and contains a method of treating linear equations of any order that serve as a foundation for the approximate solutions, which are absolutely indispensable to physical astronomy in the present imperfect state of the calculus. The other two are in the French Academy's Memoirs for 1757 and 1769, the latter giving the demonstrations of the theorems on integration contained in the former. It is in the twenty-first of these that he claims having suggested, as we have already seen, to Clairaut his equation of conditions in the case of three variables. The 'Opuscules' contain likewise, especially the 4th, 5th, and 7th volumes, some most important papers on the calculus. Nor must we omit to record that there is every reason to give him credit for having discovered Taylor's Theorem. It is certain that he first gave this celebrated formula

complete, having, in the article 'Series' of the 'Encyclopédie,' first given the remaining terms left out by Taylor, and also a demonstration of the whole, better than the original inventor's. Condorcet, who only knew the Theorem from this exposition of it, treats him as certainly being its author; and D'Alembert himself, citing no other discoverer, plainly gives it as altogether his own*.

I have thought it better to pursue the same method in treating of D'Alembert's works that I adopted respecting Voltaire's, giving all his scientific researches, his important physical and analytical discoveries, in a connected order, and thus avoiding the interruption of the series which an exclusive regard to the chronological succession of his different works on all subjects would have occasioned. We must now return to the history of his life, and the other pursuits with which his severer studies were interrupted, and his enjoyments, as it were, variegated.

In those scientific pursuits, the history of which we have been surveying, he passed the first eighteen years after he left the College, and he passed them in uninterrupted tranquillity and happiness, in tasting the pleasure of contemplating the relations of necessary truths, in adding to the number which had been before ascertained, and in enlarging the sphere of his own use-

* If very small things might be compared to great, I should note the circumstance—the accident, I may well term it—of my having hit upon the Binomial Theorem, and given it as an exercise to Professor Playfair, when attending his class in 1794. He kept my paper, and used to mention this circumstance. He said he concluded I had found it only by induction, which was true. The demonstration is, indeed, very difficult.

fulness as well as his fame. His existence had been one which the children of this world, the pampered sons of wealth and fashion, the votaries of vulgar pleasure, and the slaves of ordinary ambition would regard as obscure and even wretched; for he had neither wealth nor rank, and all his gratifications were of a purely intellectual kind. But his enjoyment had been unbroken; he had no wants unsupplied; he tasted perfect tranquillity of mind; and his friends, who esteemed him, were great men of congenial habits. He had now passed his thirty-fifth year—

"Il mezzo di camin di nostra vita."—DANTE.

His devotion to the mathematics had all along estranged him from those branches of physical science which do not lend themselves to analytical investigation. Indeed, as I have shown in the Life of Simson, he appears even to have disregarded all geometrical inquiries which were unconnected with modern analysis. But he had always cultivated a taste for the belles-lettres, and both read and understood poetry. He was also well acquainted with moral and metaphysical subjects. The singularity is, therefore, great, that he should have had no taste for the inductive sciences. Herein he differed widely from other great geometricians. To say nothing of the greatest of mathematicians, Newton himself, alike of inexhaustible resources in experimental as in analytical and geometrical investigation, Euler and Laplace both were much attached to experimental philosophy. D'Alembert had, moreover, lived in the society of several persons whose pursuits were not at all confined to the mathematics, and with some for whom that science had no attractions. Of these

Diderot was his most intimate and earliest friend; and he it was who prevailed upon him to join in the conduct of a great literary undertaking, the first French Encyclopædia. This work was published at Paris from 1751 to 1758; and of these seven volumes D'Alembert and Diderot were the joint editors. D'Alembert also contributed many of the best articles, and wrote the celebrated Preliminary Discourse upon the distribution and the progress of the sciences. The merit of those articles is generally, as might have been expected from such a writer, great in proportion as he exerted himself to elaborate and to finish them. But the best are, as might have been expected, the mathematical.

The Preliminary Discourse has, in my very humble opinion, and speaking with an unfeigned respect for both its illustrious author and its eminent eulogists, been praised much beyond its merits. The very ground of those panegyrics, that it traces the invention of the sciences and the arts to the necessities and the desires of individual nature, seems to be a satisfactory proof how fanciful and indeed how confined the whole plan of the work is. Professor Stewart has most justly remarked ('Dissertation, Encyc. Brit. Introd.') that there is in the Discourse a total confusion of two things, in themselves wholly different and which ought to have been carefully kept distinct—the character and circumstances and progress of the individual, and those of the species. It is the scientific advance of the race that the author professes to treat; but he is constantly dealing with the unfolding of the faculties in the man. There arises from hence a most shadowy, indistinct, and vague view of most points discussed. And

not unconnected with this confusion is the other main error of the whole treatise, the error into which Bacon had fallen before; the sciences are classified under the heads of memory, imagination, and reason, only Bacon's arrangement revived. But nothing can be more fanciful, nothing less accurate, than such a distribution, which sacrifices sense to point, and sound principles of classification to outward symmetry and affected simplicity. The total want of precision, and of logical arrangement in the details of this division, is indeed striking. Thus under History we have Natural History, or a record of all facts, whether relating to animals, or vegetables, or minerals, or the heavenly bodies, or the elements, as to heat, air, water, meteors. Then in what does this differ from inductive or experimental philosophy, which yet forms a branch of the second great division? Moreover, why are moral facts omitted in the division of History? Then the application of natural powers to different uses is another branch of History, and thus all the arts are introduced under this head. In the division of Natural Philosophy we find equal want of precision. Can anything be more inexplicable than to find a person, who like D'Alembert was both a mathematician and a metaphysician, treating mathematics at a branch of natural science, as if number, or indeed quantity, could be regarded as a physical existence? Not more happy is the execution of this plan in the moral and intellectual division. These are ranged under the science of Man. Then what place has the subject of instinct, which is just as intellectual a branch as that of reason? Logic is defined to be the science of intellect, or the means of finding truth; Morals, that of the will, or the grounds of virtue.

But the Fancy is as much a subject of intellectual science as the Reason. Moreover the moral qualities belong to the understanding. Under Logic he brings hieroglyphics and heraldry ('La Science du Blason'), and also rhetoric, including the art of versification; but poetry belongs to the third great division, Imagination, though oratory is ranged under the second, with Logic.

Thus of this celebrated classification and the famous genealogical tree applied to it, the object of so much self-gratulation with the Encyclopædists, we may fairly judge by its fruits, and they are of but mean value. It shares the same blame, however, with the division of Bacon, the root and seed from which it springs. We find that great master of logic classifying the mechanical arts and history together; nay, in his threefold division of the sciences, according as the Deity, man, or external nature are their objects, he classes intellectual and moral philosophy with anatomy and medicine, optics and acoustics with ethics, the chemical qualities of human bones and blood with human philosophy, that of animal bones and blood with natural philosophy. So D'Alembert not lagging behind his master in paradox affirms that imagination has the greatest share in metaphysics and geometry of all the sciences connected with reason.

That the celebrated Discourse contains many bold general views, often more bold indeed than considerate, that it abounds with learning, that it is full of ingenious suggestions, is perfectly true. That it is written in a plain, perspicuous style, well suited to a didactic work, is also certian. But that the impression which it produced was owing much more to its large scope, to the amplitude of its range, than to the soundness of its doc-

trines, or even to any felicity with which these were illustrated, is, I believe, now the opinion of all who impartially consider the subject.

No sooner did the great work appear, to which this Discourse formed the introduction, than the freedom which marked some of the opinions delivered, perhaps the omission of certain subjects altogether, but certainly much more than either of these circumstances, the well-known sentiments upon religious questions of many contributors, though that subject was in general avoided with care, raised a great opposition among the friends of the Church, who were soon joined by those of the temporal government; and this hostility was encouraged by all who made a trade of literature, the professed authors not belonging to the circle of the Encyclopedists, a name soon applied not only to the authors of the work but to the whole *free-thinking* part of the community. The storm soon became general, but the article 'Genève' was the first cause of attack. The free constitution of that little republic was praised, the conduct of its magistrates commended, the character of its people extolled, but there were doubts thrown upon the orthodoxy of its pastors, and a distinct condemnation was pronounced of Calvin's prohibition of the drama being still maintained in force.

Rousseau, though himself the author of plays and operas, attacked this article. His 'Letter' had extraordinary success, and D'Alembert's reply is on all hands allowed to have been a failure. Even his indiscriminate panegyrist, Condorcet, is fain to confess "Nous avouons sans peine que sa réponse eut moins de succès." ('Hist. Ac.' 1783, p. 102.) The attack on the Encyclopedists

was not confined to their literary adversaries or rivals, terms far too frequently synonymous, to the disgrace of letters. The circles of fashion, which at Paris always had their factious divisions, and always connected themselves both with literature and the theatre, took their share in the controversy. The clergy, of course, were not slow to join; and the Government became influenced against the great work and its conductors. D'Alembert now first knew what it was to have the hitherto unruffled calm of a geometrician's life broken and agitated by the tempests of controversy and of faction. Though he had never lived retired from the world, yet he had not been so mixed up in its affairs as to have acquired the callousness by which practical men soon become protected against the buffetings of the world. He could not easily reconcile himself to the bitterness that assailed him, and the injustice to which it led. When the Government refused in 1758 to let the 'Encyclopédie' be any longer published in France, and its seat was transferred to Neufchâtel, he retired from all share in the direction, (which Diderot alone continued to exercise,) and only contributed articles on mathematical and metaphysical subjects.

During the stormy years which now passed over his head he published his 'Mélanges de Philosophie, d'Histoire, et de Littérature,' his 'Memoirs of Queen Christina of Sweden,' his 'History of the Fall of the Jesuits,' and his 'Essay on the Intercourse of Literary Men with the Great,' a work in which he reads to his brethren lessons of independence, fully as distasteful as wholesome. His serious, rational, and dignified remonstrances are known to have at least had the salutary effect of terminating

the degrading practice of authors dedicating their works, both of fancy and of science, to the great, in addresses which savoured rather of prostrate submission before a superior being, than of gratitude for human patronage. He had long before accommodated his own practice to the course which his principles, as expounded in this Essay, would sanction; his first work (the 'Dynamique') having been inscribed to M. de Maurepas, Minister of Marine, in a respectful but dignified address, only stating that a scientific work was naturally enough dedicated to a statesman who protected the sciences.*

The annoyance and frequent irritation which the deviations from his proper pursuits occasioned him, made him always most willing to resume his more calm and congenial occupation. His researches on various important questions of physical astronomy, and his completion of the solution which he had a few years before given, as we have seen, of the great problem of disturbing forces, were published during the stormy years of his life. But it is truly painful to think that the soreness which he experienced from unjust attacks was supposed on more than one occasion to extend its influence into the serene regions of abstract science, and that the geometrician and the controversialist were sometimes perceived to be the same individual. The absurd attempt

* His dedication to M. D'Argenson of his 'Essai sur la Résistance des Fluides,' did not by any means conform to his principles. After praising many other qualities, he ascribes, perhaps with some show of justice, to that virtuous Minister, "Modestie, candeur, amour du bien public, et toutes les vertus que notre siècle se contente d'estimer." Did he mean to conceal under the latter branch of this sentence only the meaning that M. D'Argenson gives an example of loving the virtues which others only admired?

of ignorant men to depreciate his labours in the great problem, by representing him as borrowing from Clairaut, instead of only exciting his indignation against the silly propagators of such insinuations, which assuredly had no countenance whatever from Clairaut, as we have already seen, led him to show more heat than beseemed the geometrical character in scientific disputes on the subject with that illustrious colleague, whom he shewed an unworthy disposition to differ with. A controversy of some length arose between them, when the principles of the solution respecting the lunar orbit were applied to the construction of lunar tables. D'Alembert's were published in his 'Recherches' in 1754, and he soon found their inaccuracy to be considerable; the results of his calculations sometimes differing seven or eight minutes from the observations. He was obliged in 1756 to give a corrected set after further investigation. Clairaut was writing at the same time on this subject, and he had received a prize from the Academy of Petersburgh for his work. D'Alembert, who had been a candidate too, attacked his methods in his 'Recherches,' 1756. Clairaut gave a criticism of this book and of the author's method in the 'Journal de Sçavans;' D'Alembert replied in the 'Mercure;' and Clairaut rejoined in 1758. The same unworthy spirit broke out on Clairaut having applied his investigation of the disturbing forces to the comet of 1682, (Halley's comet,) expected in 1759, but appearing a month earlier than Clairaut foretold, owing to an error of nineteen days in the computation. Anonymous attacks upon him he ascribed to D'Alembert, and a long series of controversial papers in different journals ensued; until Clairaut appeared to silence his adversary by an elabo-

rate summary of the dispute, in 1762*. Again, when Clairaut investigated the figure of the earth upon the hypothesis of a variable density in the different zones, but the same throughout each, D'Alembert was not satisfied with

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* I observe that Montucla (vol. iv. p. 72) considers D'Alembert as the author of the anonymous attacks, but he is evidently prejudiced against him. Indeed it is not clear that the editor, Lalande, may not have modified some passages. A person who could write the note about Clairaut might, indeed, be rather suspected of leaning against him. But there is no being certain respecting one who is so weak as Lalande; one who, not content with constantly recording his own small exploits in science, prints a motto under his portrait in the edition of Montucla, purporting that though the heavens were under his empire, and his genius penetrated through space, he yet reigned still more in the hearts of men. His flippant note (vol. iv. p. 188,) on Boscovich shews his dislike of D'Alembert. "Le Père Boscovich ne fesait pas autant de calcul intégral que D'Alembert, mais il avoit bien autant d'esprit." He charges D'Alembert with persecuting the Père all his life. But little reliance can be placed on this assertion, at least if we may judge by the manifest falsehood of his statement, that "D'Alembert attacked Boscovich in his 'Opuscule,' vol. i. p. 246;" for all the attack consists in defending himself against an objection made by "an Italian geometrician of note in the science." The utter incompetency of a person like Lalande to edit such a work as Montucla's, can hardly be conceived without reading what he has done. Such ignorance or want of judgment is inconceivable, as could make him call Priestley's 'History of Optics' (so he terms it) a work of great importance, and one of its author's best, while by speaking of it as a book in 813 4to pages, he shows that he never had seen it; such ignorance as could also make him speak of Priestley's "universal erudition," (vol. iv. p. 604, 5.) The entire want of common care as to dates is shewn in his quoting Black's experiments as published in 1777. The analytical expressions so abound with errors, possibly of the press, but which Lalande was incapable of correcting, that nothing can be more unsatisfactory than reading the book; nothing more tiresome than using the formulas, and finding, after perhaps a laborious investigation, as has happened to myself, that there was a gross error in them.

giving his own solution more generally and more rigorously, but assailed Clairaut's hypothesis. However, this controversy was carried on with much less heat than the former. Geometricians appear to be agreed that in the one case, that of the lunar tables, Clairaut had the decided advantage over his adversary, whose mind did not easily lend itself to such details; but that the balance inclined in his favour upon the question of the earth's figure, D'Alembert's solution being certainly more general and less dependent upon assumption. His treatise on this subject is universally admired by geometricians, and it contains both the differential equations, then first given, of the equilibrium of fluids, and the new and most important theorem upon the relation between the polar oblateness and increase of gravitation on all possible suppositions of the earth's internal structure. Finally, as regards this controversy, so painful to every reflecting geometrician, all men must be satisfied that in point of courtesy and candour there is no comparison between the two combatants. D'Alembert's blunt habits, which were excused in society as marks of simplicity, gave an unpleasant tinge of bitterness to his controversial writings, wholly unworthy of a philosopher, and little to be expected and less to be excused on questions of pure mathematics.

Let us, for relief from the pain which this portion of D'Alembert's history gives, do, as he did in the actual circumstances, retreat to geometry for comfort and for calm. In the midst of the virulent attacks which his 'Mélanges' called forth, and which were at the bottom of his soreness towards Clairaut on very different topics, see how he himself describes the truly philosophical course

which his better reason indicated, and which he generally pursued: "Me voilà claquemuré" (walled in, or built round,) "pour long temps et vraisemblement pour toujours dans ma triste, ma très chere, et très paisible géometrie. Je suis fort content de trouver une prétexte pour ne plus rien faire dans le déchaînement que mon livre a excité contre moi. Je n'ai pourtant attaqué personne, ni même désigné qui que ce soit plus que n'a fait l'auteur du Méchant, et vingt autres contre lesquels personne ne s'est déchainé. Mais il y a heur et malheur. Je n'ai besoin ni de l'amitié de tous ces gens-là, puisque assurement je ne veux rien leur demander, ni de leur excuse, puisque j'ai bien résolu de ne jamais vivre avec eux: aussi je les mets à pis faire" (to do their worst). Again he says: "Eh bien! vous ne voulez pas, ni Fourmont non plus, que je me claquemure dans ma géometrie! J'en suis pourtant bien tenté! si vous saviez combien cette géometrie est une retraite douce à la paresse! et puis les sots ne vous lisent point, et par conséquent ne vous blâment, ni vous louent; et comptez-vous cet avantage là pour rien? En tout cas j'ai de la géométrie pour un an tout au moins. Ah! que je fais à présent de belles choses que personne ne lira! J'ai bien quelques morceaux de littérature à traiter qui seroient peut-être assez agréables, mais je chasse tout cela de ma tête comme mauvais train. La géométrie est ma femme et je me suis remis en menage. Avec cela j'ai plus d'argent devant moi que je n'en puis dépenser. Ma foi, on est bien fou de se tant connoître par des choses qui ne rendent pas plus heureux; on a bien plutôt fait de dire 'Ne pourrois-je pas me passer de cela?' Et c'est la recette dont j'use depuis long temps."

It is to be considered that the abundance of income which he thus speaks of was not much above one hundred a year; for we know from himself that a short time before he had but 1700fs., or 68*l.*, and the place of Pensionnaire Surnuméraire, which he obtained by election of the Academy in 1756, when he thus stated his means of living, could not have exceeded 1000fs.

In the autumn of 1752, the King of Prussia, to whom he had inscribed his Prize Memoir on the Winds, with some tolerable Latin lines,* invited him to settle in Berlin, offering a pension of 500*l.* a year, apartments and a table in the palace, with the office of President of the Academy, in the event of Maupertuis' death, who was not expected to live. D'Alembert refused this handsome offer, on the ground of his whole enjoyment being the society of his friends in the Parisian circle to which he belonged; and of his somewhat excessive fear of any connection which should interfere with, or put in jeopardy, the perfect freedom so essential to his happiness—a feeling so strong in him, that his friends used to say he was "the slave of his own liberty." At this time he states, in the correspondence with M. D'Argens, through whom Frederick's offer was made, his income, as I have stated, did not exceed 1700fs.—not quite 70*l.* a year. The scruple of delicacy which he felt as to Maupertuis was at once removed by the King desiring him to take the appointments independent of all connection with the Academy, and assuring him that Maupertuis' wish was to have him for a successor. But nothing could tempt him

* Hæc ego de Ventis, dum Ventorum ocyor alis
Palantes agit Austriacos Fredericus, et orbi,
Insignis lauro, ramum protendit olivæ.

to quit Paris. Ten years after this, he received a still more flattering offer, and one which, to an ambitious mind, would have presented more charms. The Empress of Russia, in 1762, desired him to undertake the superintendence of her son's education—the Czarowitch, afterwards the Emperor Paul. The appointments were £4000 a year, with residence in the palace. But still he preferred Paris, "the air of which agreed with his tastes and habits, notwithstanding the intolerance he was exposed to."

Indeed a great change had taken place in his manner of life, before either the Prussian monarch or the Russian became suitors for his favour. The society in which he now lived was one to which he had, about the year 1744, been introduced, and of which he soon became an intimate and esteemed member. It frequented the two houses of Mdme. Geoffrin and Mdme. du Duffand, or rather the house of the former, and the apartment which the latter occupied in the Convent of St. Joseph. Mdme. Geoffrin had succeeded to the coterie which used to assemble round Mdme. du Tencin, D'Alembert's mother; and all accounts agree in representing her as a person of extraordinary merit—sensible, clever, exceedingly amiable, of kindly disposition, and of the most active, but unostentatious benevolence. His intimacy continued to her death; or rather, as we shall presently see, to the commencement of her long illness. Mdme. du Duffand was a woman of another caste—very clever, extremely satirical, extremely selfish, and of a cold unamiable character. Beside meeting his literary friends at her apartment, he there made an acquaintance which proved the bane of his life.

Mdlle. de l'Espinasse was a young person of great brilliancy, and of a warm and romantic disposition, which contributed as much as her talents to captivate all who came within the sphere of her attraction. The similarity of their history produced a mutual interest between her and D'Alembert, for she too was an illegitimate child. She was the daughter of Mdme. D'Albon, but not by her husband, being the fruit of a criminal intercourse with her lover. Mdme. D'Albon's daughter by her husband was married to M. de Vichy, and she allowed her unfortunate sister to live with her as a governess, her parents having only settled twelve pounds a year upon her. Constant ill-usage in this house made her willing to accept the offer of Mdme. du Deffand, whose deceased husband was supposed to be her father. The moderate sum of sixteen pounds a year was to be allowed her; and in 1752 she went to live with her new patroness. Her humble office was to be the companion of that lady, to bear her intolerable humours, and to read her to sleep at an early hour of the morning—for in her life the night was turned into day, and she seldom rose much before sunset, or went to sleep before sunrise. The unhappy attendant was thus condemned also to pass her day in bed; but she rose an hour or two before her patroness, and that short interval, her only enjoyment of life, was passed in receiving D'Alembert and a few other friends, unknown to the Marchioness, who, however, discovered these secret meetings, and, treating them as a conspiracy against her, drove the poor girl rudely from her situation, warning D'Alembert, at the same time, that he must choose between the two. As might be expected, he at once preferred his young friend; and, joining with others,

obtained for her both a suitable residence and a small pension. An inflammation of the bowels, with which he very soon after was seized, and which had well nigh proved fatal, made it necessary, by the opinion of his physicians, to remove from his old nurse's small and ill-aired lodgings in the dark and narrow street, Rue Michel-le-Comte, in which, as in one of his letters he tells Voltaire, he only could see a yard or two of sky; and he took up his abode with Mdlle. de l'Espinasse, who had nursed him tenderly during his illness. No one whispered a syllable of suspicion respecting a connection which all were fully convinced could only be of the most innocent kind; and he continued to reside in the same apartment during the remaining twelve years of her singular life. It is now necessary to state some particulars of this attachment, which appear to have been given in an authentic form, and which cannot be easily reconciled with the feelings of a high and honourable nature, according to the facts as they stand recorded under his own hand.

Marmontel, one of the circle (côterie), and an intimate and admiring friend of D'Alembert, informs us that this young lady began to entertain the design of fixing in the substantial and regular form of wedded love, or at least of matrimony, the hitherto erratic admiration of which she had long been the object with many friends. He mentions an accomplished officer, M. Guibert, known for his able military writings, as the one on whom she first set her affections; and when he escaped her, tells us that she transferred her attempts to the Marquis Mora, a young Spanish grandee of the Fuentes family. But he falls into an evident mistake; for the correspondence of Mdlle. de l'Espinasse, since published, shews

that she fell desperately in love with Guibert while she was carrying on her affair with Mora. Guibert, more wary and more experienced, avoided the snare. The Spaniard was completely caught; and being ordered home by his family, fell ill, as was said, from the excess of his passion. She obtained an opinion of Lorry, the famous physician, that the air of France was necessary for his recovery; and his family yielding to this representation, he set out for Paris, but died on the way. Notwithstanding her passion for Guibert, which had been intercalated as it were, she is said to have taken Mora's death so much to heart, that her excitable and feeble frame could not stand against the shock, and she died about two years after, in May 1776.

Now, strange as it must seem to all men of right and honourable feelings, D'Alembert was so completely the dupe of his passion for her, that she made him the confidant of hers for Mora. Nay, he was sent every morning to the post-office for his absent and favoured rival's letters, that he might have them ready on her awakening. Nay, further, the opinion of Lorry which recalled him, was obtained through the solicitation of D'Alembert, the Doctor's intimate friend; and he wrote the most tender letter to Mora's father, condoling upon the young man's death. Marmontel sets all this down to the account of his extreme devotion to his mistress, and the great simplicity of his character. But this assumes that he believed her to be really in love with Mora. D'Alembert's own account is entirely different. In his 'Address to her Manes,' and his 'Address at her Tomb,' we find him distinctly complaining that she had deceived him, and made him believe for eight years and upwards that

she loved him, when he discovered, by a paper left for him to read after her death, that all the time she really loved another. She appointed him her executor; and he found that she had kept masses of letters from others and not one from himself; also she bequeathed all these letters to different persons and none to him. He then bursts out into this complaint:—"Pourquoi les devoirs que cette éxécution m'imposoit m'ont-ils appris, ce que je ne devois pas savoir et ce que j'aurois désiré ignorer? Pourquoi ne m'avez-vous pas ordonné brûler sans l'ouvrir ce manuscrit funeste, que j'ai cru pouvoir lire sans y trouver de nouveaux sujets de douleur, et qui m'apprit que depuis huit ans au moins, je n'étois plus le premier objet de votre cœur, malgré toute l'assurance que vous m'en aviez si souvent donnée?"—He then goes on naturally enough to ask what security he could have, after this discovery, that she *ever* had loved him; and that she had not been also playing upon his affections ("trompé ma tendresse") during the eight or ten other years which he had believed to be so filled with love for him. (Œuv., Vol. I., p. 25.)

Now, how can we possibly account for this but by supposing, that she had made him believe her professed affection for Mora was all a pretence? But if so, what did he think was the nature of her connexion with that enthusiastic young Spaniard? Assuredly he must have been aware that Mora was in love with her. Then what was her plan with respect to him? I confess I am driven, how reluctantly soever, to the painful conclusion, that he lent himself to the plan of her inveigling the Spaniard into a marriage, and deceived himself into a belief that her heart was still his own. Marmontel's

account is accurate enough in some particulars; but the story of D'Alembert's going for the young man's letters cannot be a fiction. It is an office no one could have easily invented for a lover. Besides, the apparent passion for Mora was known to all Mdlle. de l'Espinasse's circle. She never could conceal such a feeling when it took possession of her. That passion was not an affair of a few weeks or months; it lasted considerably more than six years; for in April, 1768, we find D'Alembert introducing him to Voltaire as his dear friend, and the young man's death was in May, 1774. (Corr. avec Voltaire, Œuv. XVI., 49.)

The fancy of this susceptible lady for Guibert was equally well known. D'Alembert saw these demonstrations of love as well as every one else; but she continued to make him believe that they were not real indications of passion. This he tells us plainly himself. It remains to explain what he took them for; and no one can easily suppose that he was not made to believe they were connected with a plan of obtaining for her a settlement in life by marriage. The certificate which he obtained from Lorry to make Mora revisit Paris is of itself a proof that such was the project, and that to this project D'Alembert was privy.

The character of Mdlle. de l'Espinasse has been drawn by several masters, and by all in very favourable colours. Marmontel and D'Alembert himself have both laboured the portrait exceedingly; and if the passion of the latter may make the truth of the resemblance doubtful, at least to the pencil of the former, both more skilful and more faithful, we must give credit.—"Cette demoiselle étoit un étonnant composé de bienséance, de raison, de sagesse,

avec la tête la plus vive, l'âme la plus ardente, l'imagination la plus inflammable, qui ait existé depuis Sappho. Le feu qui circuloit dans ses veines et dans ses nerfs, et qui donnoit à son esprit tant d'activité et de charme, l'a consommée avant le tems. Sa partie dans ces dînés (at Mdme. Geoffrin's, where she was the only woman present except the hostess,) étoit d'un intérêt inexprimable. Continuel objet d'attraction, soit qu'elle écoutât, soit qu'elle parlât elle-même, et personne ne parloit mieux; sans coquetterie, elle inspiroit l'innocent désir de lui plaire; sans pruderie, elle fesoit sentir à la liberté des propos jusqu'où elle pouvoit aller sans inquiéter la pudeur et sans effleurer la décence. Son talent de jeter en avant la pensée et de la donner à debattre à des hommes de cette classe (les Turgot, les Condillac, les D'Alembert, auprès d'elle comme un simple et docile enfant,) son talent de discuter elle-même, et comme eux avec précision, quelque fois avec éloquence; son talent d'amasser des nouvelles idées et de varier l'entretien, toujours avec l'aisance et la facilité d'une fée qui, d'un coup de baguette change à son gré la scène de ses enchantemens; ce talent n'étoit d'une femme vulgaire. Ce n'etoit pas avec les niaiseries de la mode et de la vanité que tous les jours durant quatre heures de conversation, sans langueur et sans vide, elle savoit se rendre intéressante pour un cercle de bons esprits." (Marmontel, Vol. II.)

In the society of this attractive person, D'Alembert's evenings were all passed; and during the twelve years that elapsed between her quarrel with Madame du Deffand and her decease, he lived more constantly, of course, in her company, as he occupied the same lodgings. His

mornings, after he quitted his study, were generally spent at Madame Geoffrin's; and the circle which he met at both those houses was nearly the same, except that Madame Geoffrin's was accessible to the better class of statesmen, according to her maxim that the protection of her favourites—the men of letters and of science—was well worth purchasing at this price; but for this use to which her benevolence knew how to turn them, she declared that after nine o'clock none but men of genius should find her door open, as far as her own taste was concerned.

The habits of French society, so entirely unlike our own, assemble in very small numbers the same persons almost every evening at the same houses. The master or the mistress, generally the latter, hardly ever leaves home at the hours consecrated to this refined and agreeable intercourse, or only does so on stated nights, seldom more than one in a week. It is not easy for those who have never experienced the charms of this kind of society to understand its merits. Far from becoming dull or monotonous, in consequence of the sameness of the persons who compose it, this very circumstance it is that gives so much comfort and even enjoyment to the intercourse. The intimacy of a family circle is kept up, and the interest which each takes in the others becomes a powerful incentive to bestowing mutual confidence, while it gives a pleasurable feeling to such as have no families of their own. There is, too, a variety always occurring, which no family circle can possess. The knowledge of each other's character, habits, pursuits, tastes, renders the conversation easy and interesting. The same subjects are continued from day to day. The kind of wit or

humour of the circle is well known, and gives a zest to trifles, or sallies of pleasantry, that would be little relished by strangers. Add to which, that the familiarity of all with one another, though giving all a considerable interest in the welfare of each, stops short of inspiring so great an interest as would too much excite the feelings; and in this *quasi* family circle none of the anxiety is felt which often becomes too painful in the real domestic relations. The national character is, perhaps, better suited to such habits than ours would be. Certain it is that our neighbours consider us as having nothing which can be, with any propriety of speech, called society; for those whose lives are spent in coteries, when not occupied with business, regard with unmitigated aversion the large parties which, on rare occasions, bring together hundreds of their countrymen at some of our fair country-women's houses, and would have joined a late chief-justice in his description of the obstruction which such assembled multitudes occasion of our streets, if his lordship, passing through the outer door, had extended his definition of a nuisance to the scenes which pass within the walls of those fashionable and not inhospitable mansions.

All accounts agree in describing D'Alembert as a most agreeable and most acceptable member of those circles, first at Madame du Deffand's, and afterwards at Mademoiselle de l'Espinasse's and Madame Geoffrin's. His wit was very playful and easy, and it was without a particle of gall, though not unaccompanied with traits of satire, from which his writings are entirely free. He is described as coming into society from his geometry like a boy escaped from school; and with the buoyant spirits which he drew from the success of his morning's investigations,

combined with the pleasure of his present relaxation—a pure mind, free from all passions, satisfied with itself—a gentle and equal spirit, ever true, ever simple and natural, far removed from both pride and dissimulation,—such is the picture drawn of him by the Marmontels, the Grimms, and the Diderots, who knew him best. His conversation was admitted to be delightful by the members of the most delightful and most fastidious circle in the world. His favourite maxim contributed to the charm of his conversation; he held that men should be most careful what they did, less careful about what they wrote, and least careful about what they spoke—a maxim to which he acted up in all respects himself. His inexhaustible memory—his lively unexpected sallies that never went a hair's-breadth too far—his inimitable talent of telling, and even of acting, a story—his constant vein of liberal and enlightened, but sound, and therefore tolerant philosophy,—are the themes of those who survived him, and found that the blank he had left could not be supplied. That he possessed higher qualities than these is certain, for he was the most kind and charitable of men. Half his small income was given away in beneficent acts as soon as it became greater than his few wants and strict economy required. His patronage was easily obtained for merit; not easily, or at all, by powerful solicitation. An instance, and a celebrated one, occurred of this difference. When Laplace came to Paris as a young man, he brought letters of introduction to him from persons of importance in his native town; but no notice being taken of these, he wrote him a letter on the principles of mechanics. This produced an immediate invitation to call upon the Secretary, who

told him he had no need of any introduction but his own merits, and in a week obtained for him a professorship in the Ecole Militaire.

We have seen the warmth of his attachment to the object of his love. It remains to note the dreadful grief in which he was plunged by her death. Marmontel, whose tender friendship endeavoured to soothe his affliction, describes it as excessive:—"He seemed, in returning home to his apartment in the Louvre, as if he was burying himself in a tomb." But nothing better paints his affectionate nature, and the depth of his sorrow, than his own simple and touching expressions. Speaking, in a letter to Diderot, of the loss he had sustained already, and the impending one of Madame Geoffrin, he says,—"Je passois toutes mes soirées chez l'amie que j'avais perdue, et toutes mes matinées avec celle qui me reste encore. Je ne l'ai plus et il n'y a plus pour moi, ni soir ni matin." (Cor., Œuv., XIV. 250.) Madame Geoffrin was then on her death-bed, having for some months been given over. It was a great addition to his grief for Mademoiselle de l'Espinasse, that he was prevented from ever seeing the only person who could have offered him any consolation; but during the year that she lingered, her doors were barred against him by the cruel fanaticism of her daughter, whose name deserves to be recorded in order that her memory may be rescued from its apparent obscurity, and delivered over to the scorn of all good men, all charitable Christians. Madame de la Ferte-Imbaut thought fit to write him an insolent and intolerant letter, filled with abuse, and announcing that she took upon herself to deprive her dying parent of what must have proved a great comfort—the society of the

man she most esteemed. The ground taken by this furious bigot was the known scepticism of the philosopher's opinions, though every one is aware that he never obtruded them on any society, and never gave to the world a single line in which religion and its institutions were treated with disrespect.

In the deep grief with which these irreparable losses struck him, his friends hastened to administer such consolation as their sympathy could afford. Among others, Frederick II. wrote him several letters, which are superior in point of feeling, and at least equal in ability, to any other of his works; and by that monarch's wise advice he was guided, and with success; for the only real relief which he experienced was in his favourite pursuit, his fast friend in good and in evil fortune, as Frederick advised him, (Œuv. Vol. XIII. p. 267.) He plunged into the depths of geometrical investigation, which he had too long abandoned, and he found the most salutary effects from this exertion. (Œuv. Vol. XVIII. p. 95.)*

The change which took place in D'Alembert's habits, when he became a member of those circles to which we have been referring, and passed in them no little portion of his time and all his leisure, may be supposed to have disinclined him towards his studious occupations, if it did not unfit him for them. But this was not the case. He

* It must be added as a sufficient reason for our regarding the affair of Mdlle. de Espinasse in the light of a publicly avowed matter, and not one only belonging to the immediate parties, that D'Alembert himself printed the letter to Count Fuentes on Mora's death, and also allowed Frederick's letters on Mdlle. de l'Espinasse's death to be copied, circulated, and published. Frederick was exceedingly offended with this; it produced a serious dryness, which lasted some time. (Vol. XVIII. p. 143. 155.)

had a great love of these pursuits, and a remarkable facility in following them; and the principal alteration which took place in his studies was, that he no longer confined himself to the mathematics, but undertook those other works of which mention has already been made. When he was chosen to succeed Duclos, in 1772, as Secretary to the Academy, the further labour devolved upon him of writing the Eloges of dead members; and not content with this, he undertook to give the Eloges of those who had died between 1700 and 1772, and had not been commemorated by his predecessors. In three years he composed no fewer than seventy such biographical sketches, which, with thirteen others of his writing, fill six volumes of his works. Nor can we avoid feeling great regret that he should have wasted so much time and labour on a species of composition extremely little to be esteemed. For these Eloges are almost always remarkable for omitting whatever truths tell to the disadvantage of their subjects, so that they are of little value as history; and they are so slight and superficial as notices, that beyond giving dates and facts they give nothing. D'Alembert's offer no exception to this description; they do not record the history of the learned men's works of whose lives they profess to be sketches, and only general sketches. Many of them, indeed, relate to exceedingly obscure individuals, and the most distinguished are treated of in a manner quite unsatisfactory. The most elaborate is that of Boileau, in the notes of which we find a great number of literary anecdotes. The best, perhaps, is that of a man with no pretensions to literature, Lord Mareschall (Keith) because it contains a number of racy and characteristic

traits of the worthy old politician. The taste and judgment shewn in some is of a very equivocal character. Thus Massillon is described with some reference to his finer sermons, but very indifferent passages are selected for illustrating his prodigious merits; and his funeral sermons are plainly undervalued, without any exception being made in favour of the most magnificent passage, and the most successful that was perhaps ever delivered from the pulpit, the opening of the sermon on Louis le Grand's death.* Bossuet is plainly preferred to him; and some passages are given as master-pieces that are far exceeded by others in that great preacher's discourses. The "article" on the Abbé Dubois is entertaining; but, as if to shew the incurable vices of the Eloge, a memoir being inserted written by one who had access to know the Abbé's history, D'Alembert admits his having suppressed those portions which reflected discredit upon him. It is necessary to add that the Eloges which D'Alembert composed officially as Secretary were, according to the custom of the Academy, read at the general or public meetings, which are attended by all who can obtain tickets of admission from the Academicians. At the same meetings were read other pieces of a popular description, as the 'Dialogue between Queen Christina and Descartes in Elysium,' that between 'Philosophy and Poetry,' and the 'Discourses on Poetry,' on 'Eloquence,' and others, upon the annual distribution of the prizes. That D'Alembert suffered himself to be seduced by the comparatively poor and passing gratification of pleasing

* The body was lying in the church when Massillon began, "Dieu seul est grand, mes frères!"

or amusing promiscuous audiences on those occasions, cannot be doubted. The productions are of very ordinary merit. The two dialogues just referred to contain in their more solid portions nothing at all original or felicitous; and as jeux d'esprit, they may justly be said to have little of either playfulness or wit. The one in which Christina is a prolocutor, was delivered on the reception of Gustavus III. as a visitor, and it contains some singularly unmerited compliments* to that worthless and profligate prince, nowise distinguished either for their happy turn or the cautious procedure ever to be used in noting the merits of sovereigns too young to have shewn how far taking them on trust is safe. Another jeu d'esprit, the 'Apology for Study,' is admitted among the warmest of D'Alembert's admirers to be a signal failure.

Another work of D'Alembert's, though not on a scientific subject, falls not within the remarks now made, his 'History of the Destruction of the Jesuits,' an important measure which had been finally accomplished by the Edict of the 6th of August, 1762, after their commercial speculations in Martinico had involved them in bankruptcy even prior to the capture of the island; and they had lost important law-suits with the mercantile interest in the Parliament of Paris. The Edict of 1762 was found insufficient to prevent the Society's subtle intrigues; and it was followed by several others, which dispersed

* "Sa modestie, ou plutot, et ce qui vaut bien mieux encore, sa simplicité, car la modestie est quelquefois hypocrite, et la simplicité ne l'est jamais." (IV. 82.) It would certainly have been difficult to find a word less applicable than *simplicité* to the subject of this flattery.

them and forbade them to come within ten leagues of the capital. This work of D'Alembert, the 'History,' is only remarkable for its calmness and impartiality. He gives the amplest praise to the dispersed body, and allows them to be alone, of all the monastic orders, distinguished for their genius as well as learning, while of the others the only ones not sunk in ignorance were the Mendicant orders and the Benedictine; the former of whom were only scholastic writers, the latter literary compilers. He also shews that the Jansenists, the implacable enemies of the Jesuits, were exposed to great censure, and had acted like rigorous persecutors; and he takes the sound and rational course of maintaining that the destruction of one order could only be defended on principles which lead to the destruction of all other orders of monks, and in every state. In other respects the merit of the 'History' is but moderate. There is nothing very happy in the narrative, which, indeed, is unconnected, and has the worst of historical faults, proceeding by way of allusion more frequently than of plain and direct recital. There is nothing very original or profound in the remarks. There is nothing striking in the descriptions. The style has the excellent qualities of all D'Alembert's writings, clearness and simplicity, and this is the principal praise to which the work is entitled.

His translation of select passages of Tacitus, executed with great zeal, as might be expected from his exaggerated admiration of that classic, and the kind of delusion respecting him under which he laboured, is certainly much better than his critical opinion on the original. But his ideas of a translator's duties are singularly incorrect. He complains of the common run of trans-

lators for being so "superstitiously attached to their authors, that they fear to embellish them even in feeble passages;" and contends, by a ridiculous sophism, that as we must often fall short of the originals, so we ought to take compensation by surpassing them when we can. He tells us that he sketched his translations with much rapidity to avoid coldness, and afterwards corrected with great care—a proceeding not perhaps much to be condemned; but, he adds, that he has occasionally taken the liberty of altering the meaning when "the Latin presented a puerile image or idea, and when Tacitus appears to be below himself." (Ib. 26.) Thus he lends Tacitus a little wit, a metaphor, indeed, in the celebrated description of Tiberius, whose dislike alike of freedom and of flattery made men's words difficult and slippery, or perilous. "Angusta et lubrica oratio sub principe qui libertatem metuebat, adulationem oderat." (Ann. 11, 87.) "Tant la servitude même marchoit par une route étroite et glissante, sous un prince qui detestoit la flatterie et craignait la liberté." (Œuv. xiv. 167.) Can any one doubt that this is a total perversion of the sense? Tacitus does not say, nor could he with truth say, that the one noble quality of the crafty but able tyrant, his detestation of flattery, made all the actions of men slippery and doubtful. He knew well that in every other respect submissive obedience was their only care; but the dislike of flattery only created some doubt when they were to write or to speak. Accordingly, other translators have preserved the sense of the original without losing the fine and picturesque expression of "Angusta et lubrica." "Rien de plus étroit et de plus glissant que l'usage de la parole," says La Bletterie.

"Aussi ne restoit-il à l'eloquence qu'un sentier étroit et bien glissant," says another. I have dwelt upon this passage because it is a special favourite of the author, who gives four pages of commentary on his version. So in the famous passage on Domitian, the highly wrought diction and vivid imagery of Tacitus is not sufficient to satisfy the translator. "Præcipua miseriarum pars erat videre et aspici; cum suspiria subscriberentur; cum denotandis tot hominum palloribus sufficeret sævus ille vultus et rubor quo se contra pudorem muniebat." ('Vit. Ag.' c. XLV.) "La fureur de Domitien était plus cruelle que les supplices même; nos soupirs etoient comptés; et le visage du tyran, inflammé par le crime et inaccessible à la honte, rendit plus touchante la pâleur du tant de mourans." (xiii. 267.) It is not too much to say that D'Alembert, with all his admiration of Tacitus, thought he had greatly improved upon him; though while affirming that his author had lost "nothing by the translation," he candidly admits "that the original is at least as fine." (Cor. Part. Œuv. xiv., 392.*) It is, however, now admitted by all critics that a good translation of Tacitus into any modern language is impossible. I remember Dr. Parr once saying, in answer to a learned person who asked, or rather took the liberty of asking, his opinion which was the best translation of Tacitus,—"Sir, I

* Numberless examples of failures could easily be given; but I have only selected a few to shew the consequences of his absurd theory of translation. In the character of the Fenni (De Mor. Germ.) "Fennis mirâ feritas, fœda paupertas," D'Alembert renders this most tamely and most imperfectly, "très-féroces et très-pauvres:" thus getting rid entirely of the sense of the Latin. (xiii. 233.)

thought every one had long since admitted there can be none."

Among D'Alembert's other writings of the inferior kind, to which I have been referring, must be reckoned his 'General Reflections on Eloquence.' They are superficial and inaccurate, though, like most of his literary pieces, somewhat dogmatical with their shallowness. His very definition of Eloquence is entirely faulty; he calls it the faculty of communicating to others the feelings that fill our own minds; according to which, however dull or impotent these feelings may be, their impression being truly conveyed, they produce all the effects of the highest eloquence, and so every person may be eloquent, nay, almost all may be equally eloquent. His reflections on History are of no higher merit. Of his notions respecting Poetry we have already spoken.

It remains to speak of his general treatise on the 'Elements of Philosophy.' It is one of his best literary works, and certainly preferable to the one it approaches nearest in the subject-matter, the Introductory Discourse to the Encyclopædia. It is exceedingly comprehensive; it is rapid without being hurried or hasty; it is as clearly written as possible; and it is accompanied with illustrations judiciously given and very convenient for the general reader. But though it be well entitled to these commendations, it is not easy to follow Condorcet in his eulogy of this piece as containing an important "metaphysical discovery." He regards it as settling for the first time the controversy "whether the laws of motion belong to the class of contingent or of necessary truths," and he considers D'Alembert as having first discovered the demonstration that these laws are necessary.

Now nothing can be more certain than that D'Alembert does no such thing as prove this position. He only shews, what never could be doubted, that the deductions from certain assumed facts are necessary and not contingent. Assuming the existence of matter, and also its impenetrability, he treats the vis inertiæ as demonstrated, and also its corollary, the uniformity of motion once begun and not affected by any external causes. But the impenetrability of matter is a contingent truth as well as its existence; and there is nothing in the definition of matter or of motion to make it impossible that a motion once begun should cease at a time proportioned for example to its quickness, or should be accelerated by the very nature of the original impulse; and so of the equality of action and reaction. No doubt, if the vis inertiæ be granted and the equality of action and reaction, the composition of forces may be demonstrated, and so may the proposition of equal areas in equal times, and the principle of equilibrium first discovered by D'Alembert. But these are only mathematical demonstrations of truths deducible and issuing from contingent truths. The propositions of geometry are wholly different; they result necessarily from the definitions; they are indeed involved in those definitions. Thus, if a circle is defined as the curve described by the extremity of a given straight line revolving round a fixed point, in this definition there is really contained the proposition that its length is proportional to the describing line's length, and its surface to the square of that line. We affirm in these two propositions only that if there be a curve line such as to have all the lines equal, which are drawn to it from a given point, that curve must have

certain measure of its length and surface. When we affirm that a body moves in the diagonal when solicited by two impulses along the two sides of a parallelogram, we assume, not merely that there is a body and that there is motion, but that the body has certain qualities and that motion has certain laws, and these are facts which exist, not mere suppositions which we make. D'Alembert has only the merit, and a great one it is, of having, first in his 'Dynamique' and afterwards in his 'Elémens,' reduced the whole laws of motion and equilibrium to the fewest and simplest possible fundamental principles, and therefore generalized those principles.

All D'Alembert's writings have now passed under our review: it remains to form a more general estimate of his merits in the two capacities with a detailed view of which we have been occupied, his merits as a man of science and a man of letters. And certainly the difference is very wide between his position in these two different classes; nor can I avoid marvelling, with Sir J. Mackintosh, at the partiality which so far blinded Mr. Stewart, as to make him consider him very eminent in both.

Among mathematicians he holds a high place indeed, ranking on the very first line. Euler was perhaps a more fertile analyst; and he gave incomparably greater contributions to the science, than either D'Alembert or indeed any other man. Clairaut was excelled by none in the profoundness of his researches, and the originality of his methods, and he excelled all others in the marvellous precocity of his genius as a geometrician. At the same time, we can never forget that D'Alembert's discovery of the dynamical theorem, and his most felicitous

employment of it to arrange the whole of mechanical science, exceeds anything accomplished by either of his illustrious contemporaries in usefulness, indeed in originality; while of a most important calculus he was, if not the father, certainly the person who by applying it and teaching its uses, almost changed the face of geometrical and physical science. His investigation of the lunar orbit, of the earth's figure, of the precession and the nutation, would have entitled him to rank with Euler and with Clairaut, and before Fontaine, had his 'Dynamique' and his 'Partial Differences'* never been given to the world. On the latter subject, Euler and Fontaine in some sort anticipated him; but taking the former discovery into our account, and his application of the calculus, we shall probably be justified in placing him the first among the philosophers and geometricians who succeeded Sir Isaac Newton.

It is equally clear that no comparisons can be instituted between him and that most illustrious of the human race. The 'Principia' stands at an immeasurable distance before the 'Dynamique;' and the Calculus of Partial Differences is but an improvement, though a very great one, of the Method of Fluxions; while the optical discoveries of Newton have so little that can be compared with them in the history we are contemplating, that D'Alembert never could bring himself to take an interest at all in experimental philosophy, much less to make any discoveries for extending its bounds. Not only was he without any pretension of this kind, but he was

* It is in his two works on Fluids, and in his Memoirs on the Winds and Vibrating Chords, that we find this method, and rather used or applied than explained.

incapacitated from such pursuits by his entire ignorance of many branches of physical science, an ignorance almost general with him on every thing which did not lend itself to geometry or rather analysis,—an ignorance, be it further observed, extremely discreditable to his understanding as a philosopher. Who can read without astonishment his avowal that he knows nothing of chemistry; an avowal borne out by some of his writings, and by the Discourse to the 'Encyclopédie;' when we reflect at the same time, that the greatest of geometricians and analysists did not disdain to be as thoroughly acquainted with the chemistry of his age, as any one who knew nothing else? Indeed some of his most wonderful conjectures respecting the constituent parts of bodies, may be referred as much to chemical as to optical science.*

D'Alembert's reason for undervaluing the truths of inductive philosophy, must be allowed to have been wholly unworthy of his genius for general speculation. He thought meanly of the evidence on which it rests, and could take no interest in any investigations other than analytical. Can any one doubt that the evidence of experiments is in the highest degree deserving of our respectful attention, without refusing also his approval to the whole of human conduct, which of necessity proceeds upon the admission that contingent truths, both physical and moral, rest on sufficient grounds for us safely to act upon them in all the affairs of life? Besides, D'Alembert admitted, both in theory and by his own conduct, that physical science was deserving of attention, when it could

* See especially the Queries to the 'Optics.' I remember Dr. Black citing these wonderful productions with unbounded admiration.

bear the application of the calculus. Then how was he to be sure that any given branch of experimental philosophy might not be susceptible of strictly mathematical treatment, unless he made himself master of that branch? We find Cavendish applying geometrical and analytical reasoning to such subjects as electricity. We have profound Memoirs of my illustrious and lamented colleague, M. Poisson, treating the same subject by the resources of the calculus of which he was so great a master. Capillary attraction received a similar consideration from Laplace; analysis has been successfully applied to optical researches by mathematicians of our own times. But I would not by any means be understood in these observations to admit that purely inductive researches, and those to which no geometrical reasoning can be applied, are less worthy of a philosopher's regard than those which easily ally themselves with the science of necessary truth. No one who has studied the inimitable experimental investigations of the second book of the 'Optics,' can hesitate in admitting that they are in every way worthy of the immortal author of the 'Principia.' The inquiries of Black and Cavendish excite the like admiration. Nay, has not D'Alembert himself written many profound optical papers? We have some of these in the 1st, 5th, and 7th volumes of the 'Opuscules,' and the 3rd volume is composed wholly of such. How then could he tell beforehand that he might not find other physical subjects capable of geometrical treatment?

It remains to note the inferiority in point of elegance in D'Alembert's investigations to those of many other geometricians. He was anxious only for the result; and the truth once discovered he was extremely indifferent to

the neatness of the investigation, whether of the steps by which the analysis had guided his course, or of the synthetical deduction by which he demonstrated the proposition. His own observation was, "Let us discover truths, and there will never want those who can put them in shape." Possibly his quickness (or facilité) the only quality beside "some talent,"* which he modestly claimed for himself, may have had its share in producing this carelessness about any elaboration of his analysis. He is generally clear enough in his explanations, always logical in his reasonings, but we enjoy not the pleasure of seeing the truth unfolded by the most striking methods, or traced in its most surprising relations and connected by remarkable analogies with kindred matters.

If, from contemplating the eminent merits of this illustrious geometrician, we turn to regard him in his literary capacity, there is, unquestionably, a signal falling off. He cannot be said here to occupy even a second place. It is to be observed, that his entering upon the belles-lettres, and, indeed, upon moral and historical subjects also, was a deviation from his original, and, as it were, his appointed course; nor ought the failures of great men ever to be visited with censure, but under the influence of this candid and just consideration. The accidental relations of society first seduced him from geometry, and the appointment of Secretary to the Academy completed the desertion of his mistress, leading him to indulge in the meretricious course of deliver-

* "Il a apporté dans l'étude de la haute géométrie, quelque talent et beaucoup de facilité; ce qui lui a fait un assez grand nom de très-bonne heure." Portrait par lui-même. (Œuv. i. xliv.)

ing popular essays to promiscuous assemblies on great occasions of academical display. To the task of handling literary subjects, too, he came with a most imperfect preparation. He had no depth at all of learning; his knowledge of Latin was respectable, not extensive or profound; of Greek very far from considerable, indeed hardly competent; and of the principles of criticism he was imperfectly master. In truth nothing could be more alien to his natural and amiable diffidence than the position which he assumed, without any title whatever, of dictating *ex cathedrâ* his many crude opinions and hasty and superficial comments on literary topics. His taste, accordingly, as a critic, was, without being positively vicious, certainly far from very correct. He appears to have preferred Bossuet to Massillon; but in this he agrees with probably the majority of his countrymen. He is far from placing Corneille on the same level to which his powerful genius has by general consent elevated him; and his pleasure was great when he found the idol of his worship, Voltaire, joining in repeated attempts to decry that illustrious author. Even Racine pleases him but little. The versification he thinks a model, but the dramatic effect small. 'Athalie' is a "Tragédie de collège" without action, without interest. He compares Racine, Boileau, and Voltaire, together thus; Boileau makes us think and feel what labour the verse has cost: Racine makes us think without feeling it: Voltaire makes us neither think it nor feel it; and to him he gives the decided preference. (Cor. de Volt., Œuv. xvi. 106.) Indeed, Voltaire was in all things his idol. No one can read any of his literary works and not be convinced that he regarded that extraordinary man as standing at

the head of all writers, ancient and modern, upon literary subjects, as well as of all poets. The first impression made upon him was, in all probability, by Voltaire's dramatic works. His other poems confirmed and extended the influence thus acquired over his mind; and the sceptical opinions and satirical spirit of his prose writings completed the enchantment, leaving him no power of supposing either that the god of his idolatry could ever err, or that anything was beyond his reach—insomuch that we actually find him infinitely flattered "par le suffrage accordé à l'article 'Géométrie,'" and hoping that Voltaire would be equally pleased with the articles on Forces and Gravitation, and begging him to read that on the Figure of the Earth, the merit of which consists in his correcting Clairaut's hypothesis, and on this correction Voltaire was utterly incapable of offering an opinion. The article on Gravitation consists of four sections, three of which are full of calculus, and so unintelligible to Voltaire that it seemed like a mockery to mention them. (Cor. de Volt., Œuv., xv., 41.)

The admiration which he expresses for Tasso is certainly quite legitimate. But who can allow him to single the 'Gerusalemme' out of all ancient and modern epics, as the "only one which we can read from beginning to end with pleasure and interest"? (Œuv. iv., 116.) He had just pronounced, dogmatically, the somewhat astounding dictum, that no one can read Virgil or Homer through without being weary of the task. When he singles out Tasso, indeed, he makes him the solitary exception "among dead poets;" but this qualification is manifestly introduced on behalf of the 'Henriade,' the author of which was still alive.

It is another proof of defective taste that he admires Tacitus beyond all the writers of antiquity, which critics of a much less severe taste than D'Alembert have not been tasteless enough to do. "Préjugé de traducteur à part (says he) comme il est sans comparaison le plus grand historien de l'antiquité, il est aussi celui dont il y a la plus à recueiller." He goes on to speak of the "various kinds of beauty of which this incomparable writer gives the model," and after mentioning "the energy of his descriptions of men, and the pathos of his narrative of events," ends with this astounding assertion, "qu'il possède dans un si haut degré la véritable éloquence, le talent de dire simplement de grandes choses." (Œuv. vii., 23.) I own that when I first read this passage I looked to see if there might not have been omitted, by an error of the press, the words "quoique" and "ne pas." It is hardly credible that any one should have singled out for commendation in Tacitus the very quality which he notoriously possesses not. We find the same enthusiastic admiration breaking out in his correspondence: "Quel homme que ce Tacite!" (Cor. Part., Œuv. xiv., 332.) We find him, too, consoling his afflictions in the writings of that historian, whom he quotes in both the letters addressed to Diderot on Mde. Geoffrin's death. (Cor. Part., Œuv. xiv., 251, 261.)

But it is not only from defective taste and insufficient knowledge, that D'Alembert's literary works fall so immeasurably below his scientific. They are, in general, extremely slight and superficial. His capacity of deep thought nowhere appears. There is sufficient calmness in the tone of the remarks; the discussions, when he does discuss, are conducted with commendable imparti-

ality, and the sentiments are generally those of a liberal, enlightened and unprejudiced mind; but no force is put forth; no difficulty is grappled with; nothing original or striking appears in the views taken; nothing very felicitous in the illustrations; nothing profound in the argument. The "great facility," or quickness, which has been already noted as characterizing his geometrical capacity, had a fatal effect when he deviated into lighter studies; it lulled his attention asleep and prevented the severe labour which great works in the belles-lettres demand, as in every other department of human exertion. All his writings are more or less slight and insufficient. By far the most elaborate are, the Discourse in the 'Encyclopédie' and the 'Elements of Philosophy:' but the first of these must be confessed to fail from the radical defect of its fundamental principles; and the second, though superior, does not rise much above mediocrity, nor leave on the mind any lively or lasting impression.

Of the style in which all his writings are composed, the great merit must at once be admitted. It has the good quality of perfect clearness and of undeviating simplicity. The taste which it displays is very far superior to what could have been expected from so warm an admirer of Tacitus. It seems as if his other passion, that which devoted him to Voltaire, together with his keen sense of ridicule, had effectually saved him from the rock upon which the admirers of Tacitus have so generally made shipwreck, and had purged his diction of those false ornaments in which men of science are so very apt to indulge when they quit their proper haunts and descend into the low but perilous sphere of

fine writing. Would that our physical, ay, and even our geometrical writers, would always keep the great example of D'Alembert before their eyes—not only when they deviate from their proper orbit into general speculation, but even when they are confined to their own subjects! How much vile figure and inaccurate trope; how many jumbled metaphors, disjointed declamations, and misplaced quotations, should we then be spared! His own character of his style is not at all too favourable, exemplifying what it describes: "Son style serré, clair et précis, ordinairement facile, sans prétension quoique châtie, quelquefois un peu sec, mais jamais de mauvais goût, a plus d'énergie que de chaleur, plus de justesse que d'imagination, plus de noblesse que de grace."*

We have now surveyed this illustrious life in its various phases, and observed its merits reduced to their real, but still magnificent dimensions. The events by which it was diversified were necessarily few. The kind of existence which D'Alembert enjoyed in his study and the society of Paris has been described. From those habits he seldom deviated, unless in so far as his whole literary occupations may be considered to have been, as indeed they were, a deviation. His intercourse with Voltaire and with Frederick II. have been mentioned, and they were nearly all that can be said to have variegated the tranquil and uniform tenor of his way.

To Voltaire at Ferney he paid a visit in the autumn of 1756; and it is plain from all Voltaire's letters that this occurrence gave the greatest satisfaction to "the

* Portrait de lui-même. (Œuv. i., xlv.)

Patriarch." The tenor of their correspondence was one of uninterrupted confidence and mutual esteem. That D'Alembert occasionally sacrificed somewhat of his wonted independence to his profound admiration of his friend, is certain. A mathematician like him should never have given to Voltaire's ignorant and ridiculous assertion that Leibnitz and Descartes were two charlatans ('Corr. Vol.' Œuv., XVI. 77) so tame a reply as merely to say, that he had not read the collection of Leibnitz' works, but readily believed it to be "un fatras où il y a bien peu de choses à apprendre" (Ib., 80). Though Voltaire may only have spoken of that great man's universality, an objection which it little becomes either himself or his correspondent to make, yet the first geometrician of the age ought never to have left the subject without a protest in favour of the founder of modern Analysis. There is, however, something very touching in the ease with which D'Alembert bowed before the errors and the ignorance of genius, contrasted with the sturdiness of his resistance to all the attempts of mere station or private friendship to influence his opinion. Mdme. du Deffand, then the patroness of his mistress and his own, in vain besought him to slide in a word on behalf of her friend the President Hénault when the 'Discours' was preparing. D'Alembert peremptorily refused to say one syllable of that feeble and correct chronologer in the 'Discours,' and would only, under the head of "Chronology," go so far as to say he had written one of the three chronological abridgments which were useful, but not the best of them ('Œuv.,' XIV., 322. 343).

The correspondence with Frederick II. was continued for thirty years, during three-and-twenty of which it was

constant and regular. There is, perhaps, as much independence in it on the philosopher's part as can well be expected in such circumstances; yet, certainly, a very considerable portion of it is filled with constantly-repeated expressions of respect, devotion, gratitude, and of admiration for the royal qualities and station. The letters written on any days that happened to be anniversaries of Frederick's victories, are always dated "Anniversary of such and such a battle" (see XVII., 16. 422, &c. &c.) A Frenchman, whose country was at war with Frederick, expresses his joy at all that prince's victories for six years, except only the one over the French army at Rosbach (XVII. 7). A scornful opinion of his intimate friend Diderot's works, and a report as contemptuous of his personal qualities (XVII. 381.), is only met with a prediction that, should his Majesty see Diderot, he would judge more favourably of him than he had done of his works (Ib., 383). Flattery, of course, is lavished unsparingly. Not only is Frederick the Cæsar of the age, which he certainly might fairly be termed, but he is raised to a divine rank, being commemorated as both Mars and Apollo (Ib., 259. 389). Nor is any clear expression of opinion given, when, after committing the greatest public crime in modern times—the partition of Poland—Frederick sent the philosopher his Polish Medal, with the false motto, "Regno reintegrato." He coolly takes it as a proof that the King had only taken the step of re-entering into the possession of his own old dominions (XVII. 329); and after the lapse of eight years had left no possible doubt on the nature of the transaction, we find him introducing Ruhlières to the King as desirous of writing Polish History under his patronage,

and expressing "his great admiration of his Majesty." But the wary King-partitioner had the sense to see what might follow from hence, and told his correspondent that the event was too recent to be the fit subject of an historical work (XVII. 235, 6. 240).

In the course of this correspondence D'Alembert went twice to visit Frederick,—once in 1755, when the latter was at Wesel on the Rhine; and again in 1763, when he passed two months with the king at Potsdam. The impression left on the royal mind by both these visits was highly favourable to D'Alembert, as might well be expected from his modest, ingenuous nature, and excellent social habits.

Towards his sixty-fourth year his health—which had never been robust, though his life was eminently temperate, and always with an entire abstinence from fermented liquors—began to decline. A feeble digestion and constant difficulty of sleeping, had long been the bane of his bodily comfort. To these ailments was now added an affection of the bladder, which his medical friends found to be beyond the reach of their art. He suffered exceedingly for the last three years of his life, and suffered with an exemplary calmness and even cheerfulness; at length, exhausted with pain, with irritation more than pain, with sleeplessness, with indigestion, and its consequent weakness, he expired on the 29th of October, 1783, in the sixty-seventh year of his age. His most intimate friend, Diderot, died of dropsy nearly about the same time. It is emphatically stated by Grimm, whose intimacy with Diderot gave him means of knowing the truth of the assertion, that D'Alembert might have prolonged his life had he not refused submit-

ting to a surgical operation. Be that as it may, during his long and painful illness his mind appeared exhausted like his body, but the mental feebleness was only apparent; for the intervals of ease which he had were occupied with mathematical investigations, and with other subjects that interested him. His sick-chamber was attended by numerous friends, among whom he alone retained his gaiety, enlivening the conversation with sallies of pleasantry, in which their feelings would hardly let them participate. Condorcet was, he knew, to write his éloge for both Academies. A day or two before his death he said to him, "Mon ami, vous ferez mon éloge dans les deux Académies, vous n'avez pas de tems à perdre pour cette double besogne." ('Grim. Corr.') Yet sometimes the torment he endured overpowered him; and his unostentatious dislike of all pretence, all acting, prevented him from concealing his agony. "Nature," said he, "has left a suffering being the relief of complaining." And if he ever accused himself of importunately afflicting his friends by his sufferings, he would say that he could hardly "conceive how so feeble a creature was able to endure so much without dying." The certainty of his end approaching was announced to him, and he received the tidings with the most absolute tranquillity. His cheerfulness remained unbroken; and the last words he uttered were to a friend who attended his death-bed: "Do you hear how my chest is filling?" M. Pouque, member of the Institute, communicated this interesting anecdote to La Harpe. The words were addressed to him.

The fame which D'Alembert for a long course of years enjoyed all over Europe, was certainly greater than

that of any other man of science in any age. Voltaire's was little or nothing among philosophers; and prodigious as it always was as a poet and a literary man, his opinions upon religious subjects were so generally known, indeed so openly declared, that his reputation, how great soever, was to a certain degree of a party caste. D'Alembert, the first philosopher of the age, was likewise advantageously known among literary men, and estimated above his deserts in letters on account of his admitted superiority in science. During his life, too, though attached to the party of the Free Thinkers by his habits in society, he had never made himself obnoxious by any public declaration of his opinions; and was indeed never known to be an infidel till his correspondence with Voltaire was published after his death. There was no name, therefore, which carried such weight among men as his; and while he lived, though cabals among politicians now and then interfered against him, as when his academical pension was delayed, because, in a letter opened at the post-office, he was found to have called the Duc de Choiseul, Voltaire's protégé rather than his protector; yet in general, full justice was done to his transcendent merits, and his name was everywhere amply honoured. A letter of Abbé Galliani may be cited as shewing the estimation he was held in even at Naples, where one might have expected merit, such as his, would be slow to penetrate. The Abbé thus gaily refers to a letter some one had brought from the great man:—"Elle m'est si chère, me cause tant de plaisir, me rend si glorieux, que c'est le meilleur présent que j'eusse pu recevoir de Paris. Si vous voyiez comme je me rengorge endisant dans la compagnie, '*Je viens de*

recevoir une lettre de D'Alembert,'—que je tire à moitié de ma poche, et que j'y laisse tomber sans en faire la lecture à cause d'un certain petit bricole qu'il y a dedans, qui n'est pas pour tout le monde." I cannot refrain from continuing the quotation of this truly witty letter:—"Sur cela grands discours sur D'Alembert; grand étonnement lorsque je dis qu'il est petit de taille, pantomime et polisson au possible. On veut partout que vous soyez grand comme St. Christophe, et sérieux et barbeux comme le Moïse de Michel Ange.* On finit par me demander tous à la fois, 'L'avez vous-vu ?' comme on demandait a Pape Panurge dans l'Ile des Papegais et des Papefigues. Non, en vérité, un Messinois n'est pas si vain de sa lettre de la Madonne que je le suis de la vôtre."—(Œuv., XIV., 399.) Such is the style of one who himself stood at the very head of the most witty and agreeable society of the times; and was more run after than any one of its members. And it may safely be affirmed that no man in any circle of Europe, would in those days (1773) have received a letter from D'Alembert with different emotions.†

The neutrality which he had always during his life maintained upon sacred subjects, was unfortunately con-

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* I have corrected the manifest error of the books which make it "Moine."

† This letter is one of the most charming for its light gay wit, that is any where to be found; nothing can give a higher idea of the Abbé's powers. The profound sense of it is on a par with the wit. Thus:—"La crainte et l'avidité sont et seront toujours les causes de la cruauté:" which he proceeds to illustrate by a most picturesque allusion to the conduct of the most cruel of men—the Spaniards in America.

fined to his published writings; and a few years only elapsed after his decease, before the real state of his religious opinions became well known by the publication of Voltaire's correspondence and Frederick II.'s. The fame which his reputation had hitherto enjoyed, caused a great and general reaction among the zealous friends of the Church, a reaction proportioned to the tolerance previously exercised towards him, while men were in the dark respecting his opinions. Nevertheless nothing could be more unjust or unreflecting than the indignation which thus broke forth. He had studiously avoided all offence, whatever opportunity he might have had of giving it. A very pious and even zealous writer, who while giving vent to his strong feelings on religion, has the candour to condemn the want of charity shown towards D'Alembert on this subject, declaring that his infidelity was only "a fault God-ward, and which men had no right to visit with censure, because he never published one phrase of an irreligious tendency, while his writings contain many warm expressions in favour of Christianity and its professors." (Portrait de D'Alembert, Œuv. I. lxvii.) This testimony from a writer who cries out against the 'Encyclopédie,' as "an arsenal of irreligion," dispenses with the necessity of adding proofs to show how fairly and even kindly D'Alembert ever talked of Christianity in public. But another and a more reverend authority may be cited to the same effect. M. Coetloquest, Bishop of Limoges, said that he had never seen him, but that he had always heard that his morals were above reproach; and his Lordship added, "Quant à ses ouvrages je les lis souvent, et je n'y trouve que beaucoup d'esprit, de grandes lumières, et une bonne morale. S'il ne pense pas

aussi bien qu'il écrit, il faudroit le plaindre; mais personne n'est en droit d'interroger sa conscience." The detestation which D'Alembert expresses, even in his private letters, of the 'Système de la Nature,' (XLI. 371. XVII. 225,) may be cited with the same view, as may the horror of Atheism which he repeatedly testifies.* And if in reality he was a zealous adversary of religion, it has been justly observed by La Harpe, that his hostility was far more directed against its ministers than against the system itself*. Nor ought we even to express our condemnation of such conduct, or our regret for its injustice, which view soever we may take of this subject, without considering the extreme provocation which the French philosophers of that age had to endure. Calas, old and infirm, broken on the wheel as the murderer of his son, a robust young man, in the presence of many of his family, to prevent him from abjuring Catholicism; La Barre condemned to have his tongue cut out, and dying in agony, because while a boy he made faces at the procession of the priests; a poor creature condemned to the galleys and pillory, and dying of the fright the day after, for having offered a bookseller a book which he knew nothing of and had received in payment of a debt:—these were the scenes that passed before the eyes of D'Alembert and Voltaire; nor let us, who have no such excuse for hating the establishment, visit too severely the sentiments which scenes like these not unnaturally raised in

* See especially in the Hist. de la Destruction des Jésuites, Œuv. v. 134. "Ce malheureux (l'athée) très-coupable aux yeux de Dieu et de raison, n'est nuisible qu'à lui-même." It is clear from all he says of the 'Système de la Nature,' that he never could believe Diderot to be the author; perhaps not even D'Holbach.

generous minds, how much soever we may be disposed to admit that they carried their indignation beyond just bounds when they confounded the use with the abuse, and made religion answerable for the faults of its professors.*

* The character given of D'Alembert by Grimm, is certainly more remarkable for its epigrammatic composition than its truth; though it may contain an approximation to some features. "Les personnes qui ont vécu le plus avec D'Alembert le trouvaient bon sans bonté, sensible sans sensibilité, vain sans orgueil, chagrin sans tristesse;" all this he explains by ascribing to him a combination of "roideur, faiblesse, et activité." He allows his conversation to have been admirable, that he could give attraction to the most dry and forbidding subjects, and gave his sallies with a grace and a readiness not easily surpassed.

APPENDIX.

I.

Extracts from the 'Discourse of the Objects, Advantages, and Pleasures of Science,' prefixed to the Works of the Useful Knowledge Society.

[The doctrines here delivered are illustrated in the Lives of D'Alembert and Banks.]

It may easily be demonstrated, that there is an advantage in learning, both for the usefulness and the pleasure of it. There is something positively agreeable to all men, to all at least whose nature is not most grovelling and base, in gaining knowledge for its own sake. When you see anything for the first time, you at once derive some gratification from the sight being new; your attention is awakened, and you desire to know more about it. If it is a piece of workmanship, as an instrument, a machine of any kind, you wish to know how it is made; how it works; and what use it is of. If it is an animal, you desire to know where it comes from; how it lives; what are its dispositions, and, generally, its nature and habits. You feel this desire, too, without at all considering that the machine or the animal may ever be of the least use to yourself practically; for, in all probability, you may never see them again. But you have a curiosity to learn all about them, because they are new and unknown. You accordingly make inquiries; you feel a gratification in getting answers to your questions, that is, in receiving information, and in knowing more—in being better informed than you were before. If you happen again to see the same instrument or animal, you find it agreeable to recollect having seen it formerly, and to think that you know something about it. If you see another instrument or animal, in some respects like, but differing in other particulars, you find it pleasing to compare them together, and to note in what they agree, and in what they differ. Now, all this kind of gratification is of a pure and disinterested nature, and has no reference to any of the common purposes of life; yet it is a pleasure—an

enjoyment. You are nothing the richer for it; you do not gratify your palate or any other bodily appetite; and yet it is so pleasing, that you would give something out of your pocket to obtain it, and would forego some bodily enjoyment for its sake. The pleasure derived from Science is exactly of the like nature, or, rather, it is the very same. For what has just been spoken of is, in fact, Science, which in its most comprehensive sense only means *Knowledge*, and in its ordinary sense means *Knowledge reduced to a System;* that is, arranged in a regular order, so as to be conveniently taught, easily remembered, and readily applied.

The practical uses of any science or branch of knowledge are undoubtedly of the highest importance; and there is hardly any man who may not gain some positive advantage in his worldly wealth and comforts, by increasing his stock of information. But there is also a pleasure in seeing the uses to which knowledge may be applied, wholly independent of the share we ourselves may have in those practical benefits. It is pleasing to examine the nature of a new instrument, or the habits of an unknown animal, without considering whether or not they may ever be of use to ourselves or to any body. It is another gratification to extend our inquiries, and find that the instrument or animal is useful to man, even although we have no chance ourselves of ever benefiting by the information: as, to find that the natives of some distant country employ the animal in travelling:—nay, though we have no desire of benefiting by the knowledge; as, for example, to find that the instrument is useful in performing some dangerous surgical operation. The mere gratification of curiosity; the knowing more to-day than we knew yesterday; the understanding clearly what before seemed obscure and puzzling; the contemplation of general truths, and the comparing together of different things—is an agreeable occupation of the mind; and, beside the present enjoyment, elevates the faculties above low pursuits, purifies and refines the passions, and helps our reason to assuage their violence.

Now, these are the *practical* advantages of learning; but the *third* benefit is, when rightly considered, just as practical

as the other two—the pleasure derived from mere knowledge, without any view to our own bodily enjoyments: and this applies to all classes, the idle as well as the industrious, if, indeed, it be not peculiarly applicable to those who enjoy the inestimable blessing of having time at their command. Every man is by nature endowed with the power of gaining knowledge; and the taste for it, the capacity to be pleased with it, forms equally a part of the natural constitution of his mind. It is his own fault, or the fault of his education, if he derives no gratification from it. There is a satisfaction in knowing what others know—in not being more ignorant than those we live with: there is a satisfaction in knowing what others do not know—in being more informed than they are. But this is quite independent of the pure pleasure of knowledge—of gratifying a curiosity implanted in us by Providence, to lead us towards the better understanding of the universe in which our lot is cast, and the nature wherewithal we are clothed. That every man is capable of being delighted with extending his information upon matters of science, will be evident from a few plain considerations.

Reflect how many parts of the reading, even of persons ignorant of all sciences, refer to matters wholly unconnected with any interest or advantage to be derived from the knowledge acquired. Every one is amused with reading a story: a romance may divert some, and a fairy tale may entertain others; but no benefit beyond the amusement is derived from this source: the imagination is gratified; and we willingly spend a good deal of time and a little money in this gratification, rather than in resting after fatigue, or any other bodily indulgence. So we read a newspaper, without any view to the advantage we are to gain from learning the news, but because it interests and amuses us to know what is passing. One object, no doubt, is to become acquainted with matters relating to the welfare of the country; but we also read the occurrences which do little or not at all regard the public interests, and we take a pleasure in reading them. Accidents, adventures, anecdotes, crimes, and a variety of other things amuse us, independent of the information respecting public affairs, in which we feel interested as citizens of the state, or as members of a particular body. It is of little importance to

inquire how and why these things excite our attention, and wherefore the reading about them is a pleasure: the fact is certain; and it proves clearly that there is a positive enjoyment in knowing what we did not know before: and this pleasure is greatly increased when the information is such as excites our surprise, wonder, or admiration. Most persons who take delight in reading tales of ghosts, which they know to be false, and feel all the while to be silly in the extreme, are merely gratified, or rather occupied, with the strong emotions of horror excited by the momentary belief, for it can only last an instant. Such reading is a degrading waste of precious time, and has even a bad effect upon the feelings and the judgment.* But true stories of horrid crimes, as murders, and pitiable misfortunes, as shipwrecks, are not much more instructive. It may be better to read these than to sit yawning and idle—much better than to sit drinking or gaming, which, when carried to the least excess, are crimes in themselves, and the fruitful parents of many more. But this is nearly as much as can be said for such vain and unprofitable reading. If it be a pleasure to gratify curiosity, to know what we were ignorant of, to have our feelings of wonder called forth, how pure a delight of this very kind does natural science hold out to its students! Recollect some of the extraordinary discoveries of mechanical philosophy. How wonderful are the laws that regulate the motions of fluids! Is there anything in all the idle books of tales and horrors more truly astonishing than the fact, that a few pounds of water may, by mere pressure, without any machinery—by merely being placed in a particular way, produce an irresistible force? What can be more strange, than that an ounce weight should balance hundreds of pounds, by the intervention of a few bars of thin iron? Observe the extraordinary truths which optical science discloses. Can anything surprise us

* *Children's Books* have at all times been made upon the pernicious plan of exciting wonder, generally horror, at whatever risk. The folly and misery occasioned by this error it would be difficult to estimate. The time may come when it will be felt and understood. At present the inveterate habits of parents and nurses prevent children from benefiting by the excellent lessons of Mrs. Barbauld and Miss Edgeworth.

more, than to find that the colour of white is a mixture of all others—that red, and blue, and green, and all the rest, merely by being blended in certain proportions, form what we had fancied rather to be no colour at all, than all colours together? Chemistry is not behind in its wonders. That the diamond should be made of the same material with coal; that water should be chiefly composed of an inflammable substance; that acids should be, for the most part, formed of different kinds of air, and that one of those acids, whose strength can dissolve almost any of the metals, should consist of the self-same ingredients with the common air we breathe; that salts should be of a metallic nature, and composed, in a great part, of metals, fluid like quicksilver, but lighter than water, and which, without any heating, take fire upon being exposed to the air, and by burning form the substance so abounding in saltpetre and in the ashes of burnt wood;—these, surely, are things to excite the wonder of any reflecting mind, nay, of any one but little accustomed to reflect. And yet these are trifling when compared to the prodigies which astronomy opens to our view: the enormous masses of the heavenly bodies; their immense distances; their countless numbers, and their motions, whose swiftness mocks the uttermost efforts of the imagination.

Akin to this pleasure of contemplating new and extraordinary truths, is the gratification of a more learned curiosity, by tracing resemblances and relations between things which, to common apprehension, seem widely different. Mathematical science, to thinking minds, affords this pleasure in a high degree. It is agreeable to know that the three angles of every triangle, whatever be its size, howsoever its sides may be inclined to each other, are always of necessity, when taken together, the same in amount: that any regular kind of figure whatever, upon the one side of a right-angled triangle, is equal to the two figures of the same kind upon the two other sides, whatever be the size of the triangle: that the properties of an oval curve are extremely similar to those of a curve, which appears the least like it of any, consisting of two branches of infinite extent, with their backs turned to each other. To trace such unexpected resemblances is, indeed, the

object of all philosophy; and experimental science, in particular, is occupied with such investigations, giving us general views, and enabling us to explain the appearances of nature, that is, to show how one appearance is connected with another. But we are now considering only the gratification derived from learning these things.

It is surely a satisfaction, for instance, to know that the same thing, or motion, or whatever it is, which causes the sensation of heat, causes also fluidity, and expands bodies in all directions; that electricity, the light which is seen on the back of a cat when slightly rubbed on a frosty evening, is the very same matter with the lightning of the clouds;—that plants breathe like ourselves, but differently by day and by night;—that the air which burns in our lamps enables a balloon to mount, and causes the globules of the dust of plants to rise, float through the air, and continue their race;—in a word, is the immediate cause of vegetation. Nothing can at first view appear less like, or less likely to be caused by the same thing, than the processes of burning and of breathing, the rust of metals and burning, an acid and rust, the influence of a plant on the air it grows in by night, and of an animal on the same air at any time, nay, and of a body burning in that air; and yet all these are the same operation. It is an undeniable fact, that the very same thing which makes the fire burn, makes metals rust, forms acids, and enables plants and animals to breathe; but these operations, so unlike to common eyes, when examined by the light of science, are the same,—the rusting of metals, the formation of acids, the burning of inflammable bodies, the breathing of animals, and the growth of plants by night. To know this is a positive gratification. Is it not pleasing to find the same substance in various situations extremely unlike each other; to meet with fixed air as the produce of burning, of breathing, and of vegetation; to find that it is the choke-damp of mines, the bad air in the grotto at Naples, the cause of death in neglected brewers' vats, and of the brisk and acid flavour of Seltzer and other mineral springs? Nothing can be less like than the working of a vast steam-engine, of the old construction, and the crawling of a fly upon the window. Yet we

find that these two operations are performed by the same means, the weight of the atmosphere, and that a sea-horse climbs the ice-hills by no other power. Can anything be more strange to contemplate? Is there in all the fairy-tales that ever were fancied anything more calculated to arrest the attention, and to occupy and gratify the mind, than this most unexpected resemblance between things so unlike, to the eyes of ordinary beholders? What more pleasing occupation than to see uncovered and bared before our eyes the very instrument and the process by which Nature works? Then we raise our views to the structure of the heavens; and are again gratified with tracing accurate but most unexpected resemblances. Is it not in the highest degree interesting to find, that the power which keeps this earth in its shape, and in its path, wheeling upon its axis and round the sun, extends over all the other worlds that compose the universe, and gives to each its proper place and motion; that this same power keeps the moon in her path round our earth, and our earth in its path round the sun, and each planet in its path; that the same power causes the tides upon our globe, and the peculiar form of the globe itself; and that, after all, it is the same power which makes a stone fall to the ground? To learn these things, and to reflect upon them, occupies the faculties, fills the mind, and produces certain as well as pure gratification.

But if the knowledge of the doctrines unfolded by science is pleasing, so is the being able to trace the steps by which those doctrines are investigated, and their truth demonstrated: indeed, you cannot be said, in any sense of the word, to have learnt them, or to know them, if you have not so studied them as to perceive how they are proved. Without this, you never can expect to remember them long, or to understand them accurately; and that would of itself be reason enough for examining closely the grounds they rest on. But there is the highest gratification of all, in being able to see distinctly those grounds, so as to be satisfied that a belief in the doctrines is well founded. Hence to follow a demonstration of a grand mathematical truth—to perceive how clearly and how inevitably one step succeeds another, and how the whole steps lead to the conclusion—to observe how certainly and unerringly the reasoning goes on from things perfectly self-evident, and

by the smallest addition at each step, every one being as easily taken after the one before as the first step of all was, and yet the result being something not only far from self-evident, but so general and strange, that you can hardly believe it to be true, and are only convinced of it by going over the whole reasoning—this operation of the understanding, to those who so exercise themselves, always affords the highest delight. The contemplation of experimental inquiries, and the examination of reasoning founded upon the facts which our experiments and observations disclose, is another fruitful source of enjoyment, and no other means can be devised for either imprinting the results upon our memory, or enabling us really to enjoy the whole pleasures of science.

One of the most delightful treats which science affords us is the knowledge of the extraordinary powers with which the human mind is endowed. No man, until he has studied philosophy, can have a just idea of the great things for which Providence has fitted his understanding—the extraordinary disproportion which there is between his natural strength, and the powers of his mind and the force he derives from them. When we survey the marvellous truths of astronomy, we are first of all lost in the feeling of immense space, and of the comparative insignificance of this globe and its inhabitants. But there soon arises a sense of gratification and of new wonder at perceiving how so insignificant a creature has been able to reach such a knowledge of the unbounded system of the universe—to penetrate, as it were, through all space, and become familiar with the laws of nature at distances so enormous as baffle our imagination—to be able to say, not merely that the sun has 329,630 times the quantity of matter which our globe has, Jupiter $308\frac{9}{10}$, and Saturn $93\frac{1}{2}$ times; but that a pound of lead weighs at the sun 22 lbs. 15 ozs. 16 dwts. 8 grs. and $\frac{3}{4}$ of a grain—at Jupiter 2 lbs. 1 oz. 19 dwts. 1 gr. $\frac{29}{43}$—and at Saturn 1 lb. 3 ozs. 8 dwts. 20 grs. $\frac{1}{11}$ part of a grain! And what is far more wonderful, to discover the laws by which the whole of this vast system is held together and maintained through countless ages in perfect security and order. It is surely no mean reward of our labour to become acquainted with the prodigious genius of those who have

almost exalted the nature of man above its destined sphere, when, admitted to a fellowship with these loftier minds, we discover how it comes to pass that, by universal consent, they hold a station apart, rising over all the great teachers of mankind, and spoken of reverently, as if Newton and Laplace were not the names of mortal men.

The highest of all our gratifications in the contemplations of science remains: we are raised by them to an understanding of the infinite wisdom and goodness which the Creator has displayed in his works. Not a step can we take in any direction without perceiving the most extraordinary traces of design; and the skill everywhere conspicuous is calculated, in so vast a proportion of instances, to promote the happiness of living creatures, and especially of our own kind, that we can feel no hesitation in concluding that, if we knew the whole scheme of Providence, every part would be found in harmony with a plan of absolute benevolence. Independently, however, of this most consoling inference, the delight is inexpressible of being able to follow, as it were, with our eyes, the marvellous works of the Great Architect of Nature—to trace the unbounded power and exquisite skill which are exhibited in the most minute, as well as the mightiest parts of his system. The pleasure derived from this study is unceasing, and so various, that it never tires the appetite. But it is unlike the low gratifications of sense in another respect: while those hurt the health, debase the understanding, and corrupt the feelings, this elevates and refines our nature, teaching us to look upon all earthly objects as insignificant and below our notice, except the pursuit of knowledge and the cultivation of virtue; and giving a dignity and importance to the enjoyment of life, which the frivolous and the grovelling cannot even comprehend.

Extracts from the Preliminary Discourse to the 'Political Philosophy,' published by the Useful Knowledge Society.

It is obvious that of all the sciences which form the subject of human study, none are calculated to afford greater pleasure, and few so great to the student, as the important one of which

we have just been describing the nature and the subdivisions. In common with the different branches of Natural Philosophy, it possesses all the interest derived from the contemplation of important truths, the first and the purest of the pleasures derived from any department of science. There is a positive pleasure in that exercise of the mental faculties which the investigation of mathematical and physical truth affords. The contemplation of mathematical and physical truths is, in itself, always pleasing and wholesome to the mind. There is a real pleasure in tracing the relations between figures and between substances, the resemblances unexpectedly found to exist among those which seem to differ, the precise differences found to exist between one figure and another, or one body and another. Thus, to find that the sum of the angles of all triangles, be their size or their form what it may, is uniformly the same, or that all circles, from the sun down to a watch dial, are to each other in one fixed proportion, as the squares of their diameters, is a matter of pleasing contemplation which we are glad to learn and to remember from the very constitution of our minds. So there is a great, even an exquisite pleasure in learning the composition of bodies: in knowing, for instance, that water, once believed to be a simple element, is composed of two substances, the more considerable of which makes, when united with heat in a certain form, the air we burn and the air we breathe; that rust is the combination of this last substance with metals; that flame is supported by it; that respiration is performed by means of it; that rusting, breathing, and burning, are all processes of the same kind; that two of the alkaline salts are themselves rusts of metals, one of these metals being lighter than water, burning spontaneously when exposed to the air, without any heat, and forming the salt by its combination. To know these things, and to contemplate such relations between bodies or operations seemingly so unlike, is in a high degree delightful, even if no practical use could be made of such knowledge. So the sublime truths of astronomy afford extreme gratification to the student. To find that the planets and the comets which wheel round the sun with a swiftness immensely greater than that of a cannon-

ball, are retained in their vast orbits by the same power which causes a stone to fall to the ground; that this power, with their various motions, moulds those bodies into the forms they have assumed; that their motions and the arrangement of their paths cause their mutual action to operate in such a manner, as to make their courses constantly vary, but also to prevent them from ever deviating beyond a certain point, and that the deviation being governed by fixed rules, never can exceed in any direction a certain amount, so as to preserve the perpetual duration of the system;—such truths as these transport the mind with amazement, and fill it with a pure and unwearying delight. This is the first and most legitimate pleasure of philosophy. As much and the like pleasure is afforded by contemplating the truths of Moral Science. To trace the connexion of the mental faculties with each other; to mark how they are strengthened or enfeebled; to observe their variety or resemblance in different individuals; to ascertain their influence on the bodily functions, and the influence of the body upon them; to compare the human with the brute mind; to pursue the various forms of animal instinct; to examine the limits of instinct and reason in all tribes;—these are the sources of as pleasing contemplation as any which the truths of abstract or of physical science can bestow; from these contemplations we reap a gratification unalloyed with any pain, and removed far above all risk of the satiety and disgust to which the grosser indulgences of sense are subject. But the study of Political Science is equally fertile in the materials of pleasing contemplation. The examination of those principles which bind men together in communities, and enable them to exercise their whole mental powers in the most effectual and worthy manner; the knowledge of the means by which their happiness can be best secured and their virtues most promoted; the examination of the various forms in which the social system is found to exist; the tracing all the modifications which the general principles of ethics and of polity undergo in every variety of circumstances, both physical and moral; the discovery of resemblances in cases where nothing but contrasts might be expected; the observation of the effects produced by the diversities of poli-

tical systems; the following of schemes of polity from their most rude beginnings to their greatest perfection, and pursuing the gradual development of some master-principle through all the stages of its progress—these are studies which would interest a rational being, even if he could never draw from them any practical inference for the government of his own conduct, or the improvement of the society he belonged to—nay, even if he belonged to another species and was merely surveying the history and the state of human society as a curious observer, in like manner as we study the works of the bee, the beaver, and the ant. How prodigiously does the interest of such contemplations rise when it is the political habits of our own species that we are examining, and when, beside the sympathy naturally felt in the fortunes of our fellow creatures of other countries, at every step of our inquiry we enjoy the satisfaction of comparing their institutions with our own, of marking how far they depart from the same model, and of tracing the consequences of the variety upon the happiness of millions of beings like ourselves! How analogous is this gratification to the kindred pleasure derived from Comparative Anatomy, which enables us to mark the resemblances and the differences in structure and in functions between the frame of other animals and our own!

From the contemplation of political truths our minds rise naturally, and by a process also of legitimate reasoning like that which discovers those truths, towards the great Creator of the universe, the source of all that we have been surveying by the light of science,—the Almighty Being who made the heavens and the earth, and sustains the frame of the world by the word of His power. But he also created the mind of man,—bestowed upon him a thinking, a reasoning, and a feeling nature,—placed him in a universe of wonders,—endowed him with faculties to comprehend them, and to rise by his meditation to a knowledge of their Great First Cause. The Moral world, then, affords additional evidence of the creating and preserving power, and its contemplations also raise the mind to a communion with its Maker. Shall any doubt be entertained that the like pleasing and useful consequences result from a study of Man in his political capacity,

and a contemplation of the structure and functions of the Political world? The nice adaptation of our species for the social state; the increase of our powers, as well as the multiplication of our comforts and our enjoyments, by union of purpose and action; the subserviency of the laws governing the nature and motions of the material world to the uses of man in his social position; the tendency of his mental faculties and moral feelings to further the progress of social improvement; the predisposition of political combinations, even in unfavourable circumstances, to produce good, and the inherent powers by which evil is avoided, compensated, or repaired; the singular laws, partly physical and partly moral, by which the numbers of mankind are maintained, and the balance of the sexes preserved with unerring certainty;—these form only a portion of the marvels to which the eyes of the political observer are pointed, and by which his attention is arrested; for there is hardly any one political arrangement which by its structure and functions does not shed a light on the capacities of human nature, and illustrate the power and the wonders of the Providence to which man looks as his Maker and Preserver. Such contemplations, connected with all the branches of science, and only neglected by the superficial or the perverted, are at once the reward of philosophic labour, the source of true devotion, the guide of wise and virtuous conduct. They are the true end of all our knowledge, and they give to each portion of it a double value and a higher relish.

The last—but in the view of many, probably most men, the most important—advantage derived from the sciences, is their practical adaptation to the uses of life. It is not correct—it is the very reverse of the truth—to represent this as the only real, and, as it were, tangible profit derived from scientific discoveries or philosophical pursuits in general. There cannot be a greater oversight or greater confusion of ideas than that in which such a notion has its origin. It is nearly akin to the fallacy which represents profitable or productive labour as that kind of labour alone by which some substantial or material thing is produced or fashioned. The labour which of all others most benefits a community, the

superior order of labour which governs, defends, and improves a state, is by this fallacy excluded from the title of productive, merely because, instead of bestowing additional value on one mass or parcel of a nation's capital, it gives additional value to the whole of its property, and gives it that quality of security without which all other value would be worthless. So they who deny the importance of mere scientific contemplation, and exclude from the uses of science the pure and real pleasure of discovering, and of learning, and of surveying its truths, forget how many of the enjoyments derived from what are called the practical applications of the sciences, resolve themselves into gratifications of a merely contemplative kind. Thus, the steam engine is confessed to be the most useful application of machinery and of chemistry to the arts. Would it not be so if steam navigation were its only result, and if no one used a steam boat but for excursions of curiosity or of amusement? Would it not be so if steam engines had never been used but in the fine arts? So a microscope is a useful practical application of optical science as well as a telescope—and a telescope would be so, although it were only used in examining distant views for our amusement, or in showing us the real figures of the planets, and were of no use in navigation or in war. The mere pleasure, then, of tracing relations, and of contemplating general laws in the material, the moral, and the political world, is the direct and legitimate value of science; and all scientific truths are important for this reason, whether they ever lend any aid to the common arts of life or no. In like manner the mental gratification afforded by the scientific contemplations of Natural Religion are of great value, independent of their much higher virtue in mending the heart and improving the life, towards which important object, indeed, all the contemplations of science more or less directly tend, and in this higher sense all the pleasures of science are justly considered as Practical Uses.

II.

Note on D'Alembert's Principle.

Professor Playfair ('Ed. Rev.' xi., 253) has by no means been happy in his enunciation of the Principle. "If the motions which the particles of a moving or a system of moving bodies have at any instant be resolved each into two, one of which is the motion which the particle had in the preceding instant, then the sum of all these third motions must be such that they are in equilibrium with one another."

The following are the observations referred to in p. 406, note.

The great utility of this principle proceeds from the universality of its operation, and from its supplying the place of the detached artifices and ingenious assumptions by which dynamical problems had hitherto been treated, by a rule directly applicable to the circumstances of the motion of one or more bodies whose motions were any other than those immediately proceeding from the direct and unfettered action of the motive force.

The principle applies equally to the most elementary and the most difficult problems—to the motion of a body down an inclined plane—the vibrations of a simple pendulum—or to the theory of the radiation of heat—the vibrations of a chord: two subjects previously of insuperable difficulty, to which the illustrious author applied his new method, and which became remarkable in his hands, not only for the solutions which he obtained, but also for the manner of them—for it was his singular good fortune, by a further invention, to overcome the analytical difficulties into which the fecundity of his dynamical principle had led him.

The great utility of this principle will not appear from the comparison of the solutions of any one problem obtained by its means, with the detached artifices previously employed; these were all private paths to one solution, whilst that is a high road to all. The solution of every problem is obtained from an equation involving some principle to which the motions of the system are subject—the advantage of D'Alem-

bert's step lay in this, that it was *the same* principle which he applied to each particular case.

Note to p. 406, line 14, by the author mentioned p. 406, note.

Since these last forces mutually destroy each other, and that the forces actually impressed were compounded of them and of those (usually called *effective*) which act in the direction the bodies really move in, so that the force originally applied (usually called the *impressed* force) is the result of these two forces, it follows that the *effective* forces would, if they acted in the contrary direction, exactly balance the *impressed* forces. Problems of dynamics are thus reduced to a general equation of equilibrium and become statical.

III.

That Euler, in the Memoir published in 1734, solved an equation of Partial Differences is quite incontestable, though he laid down no general method; which, indeed, D'Alembert himself never did, nor any geometrician before the publication of Euler's third vol. of the 'Institutions of the Integral and Differential Calculus.' The problem, as given in the 'Mem. Acad. Petersb.' vol. vii., was this; We have the equation $dz = P\,dx + Q\,da$, z being a function of x and a; and the problem is to find the most general value of P and Q, which will satisfy the equation. $Q = F\,z + P\,R$, F being a function of a, and R a function of a and x, Euler seeks for the factor which will make $dx + R\,da$ integrable. Call this factor S, and make $S\,dx + S\,R\,da = d\,T$, and make $\int F\,da = \log.\,B$.

He finds for the values required

$$P = B\,S f' : T,\quad Q = \frac{z\,dB}{B\,da} + B\,R\,S f : T$$

and from thence he deduces

$$dz = B\,S\,(dx + R\,da) f' : T + z\,\frac{dB}{B} =$$

$$= B\,df : T + z\,\frac{dB}{B} \text{ and}$$

consequently $z = B f : T$.

It is thus clear, that Euler had, in or before 1734, integrated an equation of Partial Differences; and it must further be remarked, that D'Alembert, in his paper on the Winds, the first application of the calculus, quotes Euler's paper of 1734. D'Alembert always differed with Euler respecting the extent to which this calculus can be applied, holding, contrary to Euler's opinion, that it does not include irregular and discontinuous arbitrary functions*.

IV.

The Vitrière's house, in which D'Alembert was brought up and lived afterwards for so many years, can no longer be ascertained. I have examined this matter with some care in the street in which it stood, Rue Michel-le-Comte. That street is very narrow, in no place above eighteen or nineteen feet wide, and the houses on both sides are lofty. D'Alembert, therefore, did not exaggerate when, in his letter to Voltaire, he said he could only see a yard or two of the sky from his room. The street is near the Rue St. Martin, at some distance north of the Hôtel-de-Ville. The church of St. Jean-le-Rond, at the gate of which he was exposed, and from which he took his name, stood near the cathedral of Notre Dame, and was pulled down in 1748. It was a baptistery of Notre Dame, near the Foundling Hospital, and touched the Cathedral Church. Of the Vitrière's house I have inquired everywhere, not only in the Rue Michel-le-Comte, but at the Prefecture (Hôtel-de-Ville), and among my brethren of the Institute; I can discover no traces of it. D'Alembert's Address given on his admission to the Academy in 1741, only mentions the street without giving any number.

* Cousin has mentioned the anticipation of Euler. 'Astronomie, Disc. Prélim.'

ADDITIONAL APPENDIX

TO THE LIVES OF

SIR JOSEPH BANKS AND ADAM SMITH.

Capt. Cook to Mr. Banks.

"Wills's Coffee-house, Charing Cross,
"Sunday Morning, [1768.]

"Dear Sir,

"Your very obliging letter was the first messenger that conveyed to me Lord Sandwich's intentions. Promotion, unsolicited, to a man in my situation in life, must convey a satisfaction to the mind that is better conceived than described. I had this morning the honour to wait upon his Lordship, who renewed his promises to me, and in so obliging and polite a manner as convinced me he approved of the voyage. The reputation I may have acquired on this account, by which I shall receive promotion, calls to my mind the very great assistance I received therein from you, which will ever be remembered with most grateful acknowledgments by,

"Dear Sir,

"Your most obliged humble servant,

"James Cook."

Capt. Cook to Mr. Banks.

"Sheerness, 2nd June, 1772.

"Sir,

"I received your letter by one of your people, acquainting me that you had ordered everything belonging to you to be removed out of the ship, and desiring my assistance therein.

"I hope, Sir, you will find this done to your satisfaction, and with that care the present hurry and confused state of the ship required. Some few articles which were for the mess I have kept, for which, together with the money I have re-

maining in my hands, I shall account with you for, when I come to Town.

"Taught by experience not to trust to the knowledge of servants the whole of every necessary article wanting in such a voyage, I had, independent of what I purchased for the mess, laid in a stock of most articles, which will be now quite sufficient for me, and is the reason why I have not kept more of yours.

"The cook and two French-horn men are at liberty to go whenever they please. Several of the casks your things are in belong to the King, are charged to me, and for which I must be accountable. I shall be much obliged to you to send them to the Victualling-Office when they are emptied, but desire that you will by no means put yourself to any ill-conveniency on this head, as I shall not be called upon to account for them until my return.

"If it should not be convenient to send down for what may be still remaining in the ship of yours, they shall be sent you by

"Sir,

"Your most obedient and very humble servant,

"JAMES COOK."

"My best respects to the Doctor; and since I am not to have your company in the 'Resolution,' I most sincerely wish you success in all your exploring undertakings."

CAPT. COOK TO MR. BANKS.

"'Resolution,' Cape of Good Hope,
"18th Nov. 1772.

"DEAR SIR,

"Some cross circumstances which happened at the latter part of the equipment of the 'Resolution' created, I have reason to think, a coolness betwixt you and I; but I can by no means think it was sufficient to me to break off all correspondence with a man I am under many obligations to.

"I wish I had something interesting to communicate, but our passage here has rather been barren on that head. We touched at St. Jago, where we remained two days, and Mr.

Forster got some things there new in your way. Mr. Brand has got for you a fine collection, as I am told. I depart from hence in a day or two well stored with every necessary thing, but I am told the French from the Mauritius have got the start of me. About eight months ago two ships from that island discovered land in the latitude of 48 degrees, and about the meridian of the Mauritius, along which they sailed forty miles till they came to a bay, into which they were about to enter, when they were separated, and drove off the coast by a gale of wind. The one got to the Mauritius soon after, and the other is since arrived from Batavia with a cargo of arrack, as the report goes here; also, in March last, two frigates from the same island touched here in their way to the South Sea, having on board the man Bougainville brought from Otaheite, and who died before the ships departed hence, a circumstance I am really sorry for. These ships were to touch some where on the coast of America, and afterwards to proceed round Cape Horn.

"I am in your debt for the pickled and dried salmon which you left on board, which a little time ago was most excellent; but the eight casks of pickled salted fish I kept for myself proved so bad that even the hogs would not eat it. These hints may be of use to you in providing for your intended expedition, in which I wish you all the success you can wish yourself; and am, with great esteem and respect,

"Dear Sir,

"Your most obliged humble servant,

"JAMES COOK."

CAPT. COOK TO MR. BANKS.

"DEAR SIR, "Plymouth Sound, July 10th, 1776.

"As you was so obliging as to say you would give a description of the New Zealand spruce tree, or any other plant, the drawing of which might accompany my Journal, I desired Mr. Strahan and Mr. Stuart, who have the charge of the publication, to give you extracts out the manuscript of such descriptions as I had given (if any), for you to correct

or describe yourself, as may be most agreeable. I know not what plates Mr. Forster may have got engraved of natural history that will come into my books; nor do I know of any that will be of use to it, but the spruce tree and tea plant and scurvy grass; and I know not if this last is engraved. The flax plant is engraved; but whether the publishing of this in my Journal will be of any use to seamen I shall not determine. In short, whatever plates of this kind falls to my share, I shall hope for your kind assistance in giving some short account of them. On my arrival here I gave Omai three guineas, which sent him on shore in high spirits: indeed he could hardly be otherwise, for he is very much caressed here by every person of note; and, upon the whole, I think he rejoices at the prospect of going home.

"I now only wait for a wind to put to sea; unless Capt. Clarke makes good haste down, he will have to follow me. Sir John Pringle writes me that the Council of the Royal Society have decreed me the Prize Medal of this year. I am obliged to you and my other good friends for this unmerited honour.

"Omai joins his best respects to you and Dr. Solander with,

"Dear Sir,

"Your most obedient and very humble servant,

"JAMES COOK."

These letters are given out of their place, not having come into my possession until after the Life of Sir J. Banks was printed. They appeared sufficiently interesting to be here inserted. The same reason must justify the inserting, also out of its place, the following extract from a letter of Dr. Black to Mr. Smith, on his 'Wealth of Nations.' The rest of the letter regards Mr. Hume's health. It was written apparently in August, 1776. Nothing can be more interesting than to mark the sentiments of a great and original genius respecting the exertions of another and congenial spirit in a different walk of science.

Dr. Black to Adam Smith.

"Though I sit down to write to you upon another account, I cannot help expressing the pleasure and satisfaction I frequently meet with in hearing the opinions of good judges concerning your book. I most heartily rejoice in the prospect of the additional credit and reputation which you cannot miss to gain by it, and which must increase as long as you live; for I have no doubt that the views you have given of many parts of your subject will be found by experience to be as just as they are new and interesting. And although it be admired immediately by discerning and impartial judges, it will require more time before others who are not so quick-sighted, or whose minds are warped by prejudice or interest, can understand and relish such a comprehensive system, framed with such just and liberal sentiments."

NOTE TO THE LIVES

OF

CAVENDISH, WATT, AND BLACK,

Published in the First Volume.

I HAD not read M. Cuvier's 'Eloge de M. Cavendish' when the former volume of these Lives was published. That Eloge is contained in the Memoirs of the Institute for 1811*. Its composition certainly justifies the title of Eloge; for it is a very indiscriminate, and not very accurate panegyric of an illustrious man, whose memory was best preserved and honoured by a correct statement of the facts. M. Cuvier makes no mention whatever of Watt in connection with the discovery of the composition of water. But he is not much more just to Black himself on that of fixed air; or, as he calls him, Blake: clearly showing that he had never taken the trouble even to look at any work of that great man, As to Mr. Cavendish, he gives it for part of his Eulogy that he explained his doctrines "dans une manière plus étonnante encore que leur découverte même," (p. cxxvi.) Now if M. Cuvier had read the paper upon the combustion of inflammable air, he certainly would have found that this remark in no respect whatever applies to it, for the composition of water is but darkly shadowed out in that celebrated Memoir.

He proceeds to say, that in 1766 Mr. Cavendish undertook, in his paper read before the Royal Society, to establish

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* Nothing can be more confused, more inconsistent, than the manner of publishing the volumes of this great work. It is generally a year or two and even three or four, after the real date of the papers; thus this twelfth volume of the new series is called 'Mem. année 1811,' yet it contains only two papers of 1810-11; all the rest were received in 1812-13. I have remarked this more fully in the Lives of Lavoisier and D'Alembert.

propositions, "presqu'inouies jusque là; l'eau n'est pas un élément; il existe plusieurs sortes d'airs, essentiellement différentes." He then mentions Von Helmont inaccurately, as having ascertained that there were "permanently elastic vapours other than atmospheric air;" and Hales, still more inaccurately, as having measured these permanently elastic fluids: whereas Hales considered them all as common air, combined with impure exhalations,—an opinion which prevailed a century and a half after Von Helmont, and was adopted by D'Alembert in his article "Air" in the Encyclopædia, 1751. Black's discovery of fixed air, he confines solely to its explaining the causticity of the alkalis and earths. No one, he says, before Cavendish had distinguished it as a separate aëriform substance; and though emanations were said to proceed from bodies, no one knew in what they consisted. Cavendish, he says, in 1766 first settled all these questions, and showed that this air, whether from chalk or fermentation, or mines, was one and the same fluid, "auquel on a depuis reservé le nom d'air fixe." Finally he (Cavendish) discovered that it was the air evolved from burning charcoal (p. cxxx). He then ascribes the application of inflammable air to raising balloons in the air to M. Charles's application of Mr. Cavendish's experiments on the specific gravity of that gas.

This is really somewhat astounding. That a person of M. Cuvier's eminent attainments, filling the high office of Secrétaire Perpétuel, and charged with the delicate and important duty of recording the history of science yearly, should not have deemed it worth his while to read either the celebrated experiments on Magnesia Alba and Quicklime published in 1755, or the Lectures published in 1803, before assuming to write the history of chemical discovery, is wholly beyond belief. Had he read the former work, he would have found that Dr. Black gave to the air which he had discovered the name of fixed air; and that he did so, not because it was the same with, or any modification of, atmospheric air, but simply because *air* was a known term in common use to represent a permanently elastic fluid, and because this kind of air was found *fixed* in combination with bodies. Had he

looked at the Lectures, he would have found that two years after the publication of his capital discovery, viz., in 1757, and one year before Mr. Cavendish's paper was received, Dr. Black discovered that fixed air is the gas evolved in fermentation, and that he found it to be so by the very experiment now in use to show it, namely, emptying half of a phial filled with lime water in the air of a brewer's vat, when the remaining lime water becomes turbid, the carbonate of lime being formed and precipitated; that he discovered on the same day the identity of fixed air with that evolved from burning charcoal; and finally, that he also ascertained the air evolved from the lungs in respiration to be fixed air, by breathing through a syphon half filled with lime water. All this, which M. Cuvier ascribes to Mr. Cavendish's discoveries, in 1766, had been published by Dr. Black in 1755, and explained by the experiments themselves being performed by his own hands, in his public lectures, every year before nearly three hundred persons, from the year 1757 to the time of Mr. Cavendish's supposed discovery in 1766. Of these Lectures numberless copies were taken, were in general circulation, and were sold to the students attending the classes of the College in Edinburgh. It is, however, very possible that Mr. Cavendish was not apprised of Dr. Black's experiment made before 1752 and published in 1755. But it is quite certain that he never arrogated to himself the discovery of fixed air being a peculiar body different from common air, for he expressly says, "By fixed air I mean that peculiar species of factitious air which is separated from alcaline substances by solution in acids, or by calcination, and to which *Dr. Black has given that name* in his Treatise on Quicklime." ('Phil. Trans.,' LVI., p. 140.) Now this shows clearly that M. Cuvier never had read Mr. Cavendish's paper, any more than he had read Dr. Black's Treatise, and his Lectures. Another proof is his asserting that Mr. Cavendish discovered the air evolved from burning charcoal to be fixed air. His paper contains not one word on that air as connected with burning charcoal. Nay, so far is Mr. Cavendish from assuming to himself the discovery of its identity with the air evolved in fermentation, that he expressly says Dr. Macbride had dis-

covered the evolving of fixed air in that process, and that he himself only made his experiments to ascertain if any other air was also evolved, when he found inflammable air also to come away. Apparently he had not been aware of Dr. Black's experiments in 1757. The Lectures would also have shewn M. Cuvier that Dr. Black, as early as 1766, showed his friends the ascent of a bladder filled with inflammable air, long before the experiments of M. Charles, to whom the earliest observation of this fact is by M. Cuvier rashly ascribed.

M. Cuvier mentions Macquer as having first observed the deposit of moisture when inflammable air is burnt. He says nothing of Mr. Warltire's experiment, though Mr. Cavendish himself states expressly ('Phil. Trans.' 1784, p. 126) that it was the deposit of dew observed by Warltire, which set him on making his experiments. From this omission of M. Cuvier, it is plain that he never took the trouble to read the paper of Mr. Cavendish, which, as he refers to it by volume and page, he may, therefore, have seen—he never could have read it. This also accounts for his singular assertion, that Mr. Cavendish's discoveries were explained with an evidence and a clearness more astonishing than the discoveries themselves.

It is equally incorrect to affirm, as M. Cuvier appears to do, p. cxxxiii, that the decomposition of water suggested by M. de la Place, and performed by M. Lavoisier, became "la clef de la voûte," for the analytical experiment is equivocal, and the synthetical alone is precise. He says that M. Monge had made the same experiments as Mr. Cavendish, and had the same idea, "*avoit eu la même idée*," probably meaning that of a quantity of water being formed equal to the quantity of airs burnt, and had communicated the result to Lavoisier and La Place; and Monge seems really to give the first notion of water being composed of these airs, as La Place's; for he says, "Si la combustion de ces airs donne de l'eau, dit M. de la Place, c'est qu'ils résultent de sa décomposition." Had M. Cuvier really read the work he so often cites, the 'Philosophical Transactions,' he would have found Mr. Watt's letter, and he could hardly have avoided mentioning the first idea of the composition as his.

But truly it is to be lamented that the history of science

should be written with such remarkable carelessness, and such manifest inattention to the facts. To find mistakes so very gross in the works of ordinary writers might excite little surprise; but when they are embodied in the history of the National Institute, and when they come to us under the name, among the very first in all sciences, of Cuvier, we may at once wonder and mourn.

Since the Life of Watt was published, a very strange attack on both M. Arago and myself, but more especially on my illustrious colleague, has appeared in the 'Quarterly Review.' The ingenious and (as far as this controversy is concerned) not very learned critic appears to be led away by the excess of his zeal for Mr. Cavendish. I leave him in the hands of M. Arago, who will observe with some wonder that he has been accused and judged and condemned by a chemist so well versed in that science, and so reflecting, as to announce the astonishing novelty, that the exhibition of sulphur to sulphuric acid reduces that acid and restores it to its primitive state of sulphur! The writer had probably read somewhere that *sulphuric* acid is reduced to *sulphurous* by the process; for he is assuredly the first that had ever hit upon the acid's reduction by sulphur "to its primitive state."* I have lying before me fifteen pages of statements of chemical errors in the thirty-four pages of the paper; and as these are the work of a most experienced and learned and practical chemist, whom I consulted on the above and other parts of the paper, I have entire reliance on his report and opinion. I must also add that he completely bears out, by the authority of his concurring opinion, the statements (disputed by the critic) which I had ventured to make respecting Dr. Black's discoveries, with the single exception that he is not aware how far I am justified in stating the greater specific gravity of fixed air as known to him before Mr. Cavendish's experiments

* The process of reducing phosphoric acid to its primitive phosphorus, had just been stated, and the writer adds, "A similar succession of phenomena are presented by sulphur, &c.;" and he enumerates sulphur as one of the bodies which reduce the acid to its primitive state.

in 1766. My reason for so stating was my distinct recollection of Dr. B. having in his lectures shewn us the experiment of pouring fixed air out of a receiver on a candle, and his having given this as a property originally known to himself when he discovered the gas, though it is very true that the published lectures do not decide either way the question of his early knowledge. His not mentioning Mr. Cavendish or any one else as having first taught it him is with me, who well knew his scrupulous exactness in such matters, quite decisive of his having himself observed it.

I shall only cite further my correspondent's note on the Reviewer's statement, "that I was wrong in ascribing to Dr. Black the discovery that fixed air has acid properties." (p. 110.)—"The Reviewer adds that 'the acidity of fixed air was indicated for the first time by Priestley and his fellow-labourers, and only completely established by Lavoisier, who shewed fixed air to be carbonic acid, or a mixture of carbon and oxygen.' His Lordship is quite right, and the Reviewer doubly and egregiously wrong. Priestley did *not* indicate for the first time the acidity of fixed air. Whether he understood Black's views concerning it does not appear, but he expressly disclaims the discovery as his own. His words are, 'It is not improbable but that fixed air itself may be of the nature of an acid, though of a weak and peculiar sort. Mr. Bergman of Upsal, who honoured me with a letter upon the subject, calls it the äerial acid; and among other experiments to prove it to be an acid, he says that it changes the blue juice of tournesole into red. ('Phil. Trans.' 1772, vol. lxx., p. 153.) It does not appear whether Black was aware of the reddening action of fixed air on vegetable colours, but he was abundantly aware of the *functions* of fixed air as an acid; that is, of its power to neutralize bases, and to form salts by combination with them. Black's own words are, 'These considerations led me to conclude that the relation between fixed air and alkaline substances was somewhat similar to the relation between these and acids; that as the calcareous earths and alkalis attract acids strongly, and can be saturated with them, so they also attract fixed air, and are in their ordinary state saturated with it.' ('Experiments upon Magnesia

Alba,' &c., p. 50.) The whole page might be quoted. Nothing could be more satisfactory to a chemist than this statement. The modern definition of an acid is 'a substance which neutralizes bases, and by combination with them, forms salts.' Power to affect vegetable colours, or sour taste, the vulgar attributes of an acid, are wanting in many of the most powerful of them; for example, in silicic acid. The Reviewer's reference to Lavoisier is quite meaningless. The French chemist shewed that fixed air was an oxide of carbon. Whether it was an acid oxide or not, could not be determined by analysis. That problem could be solved only by ascertaining whether or not it formed salts by combining with bases. That is the only method possible at the present day, and was the one Black followed."

So very easy is it for ill-informed and inaccurate writers to launch charges of ignorance and inaccuracy and carelessness against others! M. Arago will no doubt be fully sensible of this truth, though he will furnish no example of it in his own person or in his defence of himself.

As for the mysterious passage in p. 117, which states that the critic had prepared a commentary on my account of Mr. Cavendish's experiment regarding the density of the earth, but that, possibly through pity towards a fellow creature, he suppressed it, giving, however, as the result, that it would show "the most ingenious and entire distortion, not merely of nearly every step in the process itself, but of nearly every principle involved in it,"—I can only, with all humility, but with all comfort, mention, that the passage is none of my own, being taken very closely from the work of a most profound mathematician, professor of the science in one of our Universities; and that, in borrowing it, I find that I have avoided two errors in the original, one the misprint (apparently) of *friction* for *torsion*, the other the confining the comparison to the time of the oscillation, whereas I make it general, including therefore both the length and the duration. I wrote the account at a distance from Mr. Cavendish's paper, and therefore took it at second hand. If friction is intended, and not torsion, in the account which I copied, it is an omission certainly. How it can be called a

distortion, I cannot comprehend, nor can the learned Professor himself, whom I have consulted. I say nothing of a similar charge respecting the Torricellian experiment, except to observe, that my reference to it is most studiously framed to exclude the very construction put upon it by the critic, as the sentence beginning "unless" must plainly shew to any candid reader.

Now I write with great and unfeigned personal respect for the learned critic, who, had his work been given under the sanction of his name, would have been more careful in all likelihood. But one discovery having been mentioned, I must add, that he also has made another, a discovery which, I think, would have surprised my friend Mr. Vernon Harcourt himself, as much as it did his other readers, "that there are very few amongst the most distinguished of our countrymen superior to" that reverend and excellent person, "either as a writer or as a man of science;" so great a length will zeal for his friend and fellow polemic carry a critic engaged in a controversy.

But this zeal is readily explained by the reflection that fellow-combatants in any controversy which heats their tempers, are blind to each other's deficiencies, and exaggerate each other's perfections; they are also prone to exaggerate the services rendered by each other to the common cause. "The unanswerable arguments of my noble, or my honourable friend," is a very familiar expression on every side in Parliamentary debates, which one thus finds are conducted on both sides by combatants equally invincible, and therefore ought always to prove drawn battles. So the critic holds Mr. Vernon Harcourt's publication from Mr. Cavendish's Journals, to be decisive in favour of his contention; whereas those extracts demonstrate, that Mr. Cavendish never had, even privately, given the explanation of his experiment until after Mr. Watt's theory was in the hands of the Royal Society. I am very far from arguing upon this important publication of Mr. Vernon Harcourt's, that Mr. Cavendish borrowed the hint from Mr. Watt; but at least it demonstrates that Mr. Watt had reduced his theory to writing before Mr. Cavendish, and could not by possibility have borrowed it from him.

It must once more be repeated, that I never charged or thought of charging Mr. Cavendish with having obtained from Mr. Watt's paper his knowledge of the composition of water, and having knowingly borrowed it, however suspicious a case Mr. Harcourt's publication may seem to make. Both those great men, in my opinion, made the discovery apart from each other, and ignorant each of the other's doctrine. Mr. Cavendish was a man of the strictest integrity, and the most perfect sense of justice. His feelings were very far inferior to his principles. He was singularly callous to the ordinary calls of humanity, as there exist positive proofs sufficient to satisfy the polemical writer upon whose paper I have been commenting if he has any mind to see them. Nor do they rest on my assertion, for I never had any intercourse with him except in society. But the pursuits of a philosopher and the life of a recluse, which had so entirely hardened his heart, had not in the least degree impaired his sense of justice; and my own belief is, that he as entirely supposed himself to have alone made the discovery in question, as Sir Isaac Newton believed himself to be the sole discoverer of the nature of light, and the theory of the solar system.

Mr. J. Watt and M. Arago may now safely be left to carry on the controversy, whether with the reverend author, or with his able and ingenious, though somewhat over-zealous critic. The subject left in their hands is safe, and the truth is sure to prevail. In these circumstances I am far from feeling any anxiety as to the result, or any desire to anticipate the arguments and the statements which must so soon be brought forward. But as I have been freely and most rashly charged with inaccuracy, with inattention to facts, even with having omitted to read the original papers on which the question turns, and charged, in company with my friends M. Arago and Mr. J. Watt, (one of the most careful, laborious, and scrupulously exact of men,) I may simply assert, that as regards myself no imputation can well be more groundless; for there is not a single one of the whole papers which I have not repeatedly and sedulously examined, both alone and in company with others who took an interest in the controversy. I might add, that never was a charge made

with a worse grace than this by the ingenious, and most careless, and very moderately-informed critic who has mixed in the discussion: for assuredly *he* has not taken the trouble to read the papers, or to make himself acquainted with the works which every chemist, even every student of chemistry familiarly knows. What shall we say of a writer who undertakes to discuss this question, with no better provision for handling it, than is betokened by his broadly affirming that Mr. Watt himself never preferred the disputed claim, when there exists his own paper of 1784 in the 'Philosophical Transactions,' referring to and indeed containing his letter of April, 1783? Nay, what shall we again say of the same critic as broadly asserting, that no one ever in Mr. Cavendish's lifetime brought it forward, when Professor Robison in the Encyclopædia, Dr. John Thomson in his celebrated Translation of Fourcroy, Dr. Thomas Thomson and Mr. Murray, each in their 'Elements of Chemistry,' and Mr. W. Nicholson in both his 'Dictionary' and his other works, all state Mr. Watt's claim in the very words in which M. Arago and myself now have urged it, nay, Sir C. Blagden states it in his letter to Crell, and all these long and long before Mr. Cavendish's death,* to say nothing of others, as Dr. Thomson, in his 'History of the Royal Society,' published since? As to Mr. Vernon Harcourt's appealing boldly to Dr. Henry's authority, and preserving a profound silence when I quoted his letter, expressly negativing that confident statement, I say nothing; because it is a matter not easily handled, consistently with the respect and esteem in which I have ever held my reverend friend.

* Professor Robison in 1797; the Translation of Fourcroy earlier.

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